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THE

# DENTAL COSMOS:

A

# MONTHLY RECORD OF DENTAL SCIENCE.

Devoted to the Interests of the Profession.

EDITED BY

JAMES W. WHITE, D.D.S.

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Observe, Compare, Reflect, Record.

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VOL. XIV.

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# DENTAL COSMOS.

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## ORIGINAL COMMUNICATIONS.

### BLEACHING TEETH.

BY E. A. BOGUE, D.D.S., M.D., NEW YORK.

Among the questions for discussion at the meeting of the German dentists in Berlin this summer, was the following :

"Is it possible to bleach a tooth discolored through extravasation of blood into the dentine?"

If the proposer of this question means to ask if the normal color and tone can be again restored to a tooth so discolored, I think the question may be unhesitatingly answered in the negative, for the reason that extravasation of blood into the dentinal tubuli seldom takes place without the death of the tooth pulp, except in those cases, rare at the present day, in which arsenic has been used by those ignorant of its ultimate results, for the purpose of obtunding sensitiveness in the dentine.

In case of the death of the tooth pulp, the fluids of the dentinal tubuli become changed, the flow of liquor sanguinis is arrested, and the whole tooth assumes an opaque appearance, quite different from the translucency of the living tooth, to an experienced eye, while the *color* need not be changed a shade, in order to produce this difference in appearance, for it can be seen in teeth from which the pulps have been extracted by amputation.

If, however, the question applies strictly to color, I think the answer may be, that if treated soon enough after the infiltration of the red coloring matter of the blood into the dentinal tubuli has taken place, it is possible to bleach the tooth almost perfectly, especially in the young subject.

In stating the means for obtaining so desirable a result, it will be necessary to recall a few facts : First, then, the dentinal tubuli are somewhat larger in young people than in those of more advanced life, therefore more easy to inject with the coloring matter or the bleaching agent. Second. The largest ends of these tubuli are all toward the pulp chamber, and their ramifications proceed thence toward the enamel, so that capillary attraction, on which we must depend, operates to draw fluids from within outward. Third. The fresher the stain in any fabric, the more easily it is removed. Fourth. The proper solvent for the iron in the blood is oxalic acid, and it acts equally well upon the hematine; so if it is sure that blood alone has been the agent of discoloration, we need not look further for an antidote. Now, as to the manipulation: if the tooth to be bleached be either one of the six front teeth, let an opening be made as directly into the pulp canal as possible; if necessary to drill through from the lingual side in order to obtain direct access, do so unhesitatingly, guarding, however, the strength of the tooth carefully.

Cleanse the interior of the root and tooth thoroughly, being careful not to push any portion of the contents of the root through the apicial foramen, but to let the cleansing force be invariably applied *downward* from the end of the root, and on no account whatever let the instrument pass through the root and wound the soft parts beyond,—unless it is desired to produce a swelled face, perhaps complicated with the peculiar indications of a dissecting wound from the inoculation of the poison.

If the tooth needs treatment, apply it until it is well; then take a small instrument made like a broach, with a long handle; temper it a true blue, spring temper, and afterward file it down to the size of the finest broach needed for such cases; in this way it will bend and not break.

Wrap around the point of this instrument a few fibres of cotton, letting them extend, say half an inch from the point, back upon the instrument, secure the point, so that the instrument cannot push through the cotton, and yet have it so loose that it can be easily removed.

Dip the cotton for one-eighth of an inch into creasote or carbolic acid pure, and then swab the remainder of it in thin, creamy oxychlo. zinc. With the hypodermic syringe, or even a fine instrument, moisten the interior of the pulp canal with the fluid of the oxychlo. solution slightly, and then carefully pass the cotton loaded with its zinc mixture to the very apex of the root; turn the instrument a half-turn backward to loosen the cotton, and withdraw it, leaving the cotton and oxychlo. in the root, where it can be easily packed to nearly a level with the margin of the gum, and allowed to harden.

This makes an impervious filling for the root, the cotton and creasote being at the tip, are in the position of sponge and antiseptic at once, and the oxychlo. zinc is a well-known conservator of animal matter, and a little porous withal, so should ever need for that quality arise, it would be slightly an absorbent.

Having the pulp chamber (in contradistinction from the pulp canal) now free and cleansed perfectly, the cavity of decay likewise, and having a filling in the pulp canal that will prevent injury to the soft parts from irritating remedies; with a syringe, one or two drops of a saturated solution of oxalic acid in pure water are placed directly into the pulp chamber it is allowed to remain from three to six minutes, and its effects are watched from the face of the tooth; as soon as the dark color has nearly cleared away, the pulp cavity and tooth are to be thoroughly washed with warm water alone, and if time will allow, filled with dry chalk for a day or two; or if an immediate termination of the operation is desirable, omit the chalk and let the entire pulp cavity, lower cornua and all, be carefully and accurately filled with oxychlo. zinc, which can most easily be accomplished by having the inside of the cavity moistened with the fluid as before directed, and absorbing all surplus from the surface of the filling.

The chlorine of this mixture will still further assist in removing all traces of coloring matter left behind by the acid, and the tooth may be expected to improve in color for some hours after the completion of the operation.

When the oxychlo. zinc is fully set, enough can be cut away to allow of the insertion of a gold filling which shall cover the entire surface of the plastic filling, and shall perfectly protect all margins, from which the plastic material should be carefully removed.

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# DRIFTING.

BY C. E. FRANCIS, D.D.S., NEW YORK.

Says an old adage, "Experience is a good teacher, but sometimes proves a dear one." Many practitioners of our specialty, like members of other vocations, have recognized the truth of this oft-repeated assertion. Principles which underlie facts are not sufficiently sought or studied, but we first go to experimenting, and our successes or failures are apt to govern us or give direction to our various operations. New theories are sometimes "swallowed whole," for if they look fair and seem palatable, we consider them wholesome, and so incorporate them, but if they prove unsuited to our organism, we quickly reject them.

As a class, we are always looking for something new,—trying some (supposed) improved mode of operating, or adopting new methods of treatment. Wonderful advances have been made in the last half-score of years, yet our course has been decidedly an undulating one.

In advancing, some of us at times employ "hobby-horses," which we ride without knowing their true character, although we usually imagine that our most recent "hobby" is the only trusty one,—our old ones having shown defects, and those that others are riding we feel sure will prove treacherous.

Sometimes, in our changes, we learn by experience that we have not bettered ourselves, so we trump up a new dogma or fall back on an old and more reliable one.

I would not be understood as advocating the idea of making ourselves contented in pursuing old worn paths, over which our ancestors have traveled, feeling perfectly satisfied to do as they have done, and having no higher aim in view than to follow in their footsteps. *Perfection* should be the goal of our ambition, even though we are far from attaining it.

In our professional duties, we strive to secure the best results, yet with the least possible annoyance to our patients, and without undue tax upon our health and strength,—hence so much experimenting. This, to a certain extent, is very commendable, yet it is well to exercise proper caution in our movements, and make as few mistakes as possible.

It is somewhat interesting to note the various changes we have passed through in our professional career, and to contemplate the zeal displayed when heralding our innovations. In our treatment of disease; in our methods of practice; in the style of instruments, etc., our idiosyncrasies crop out. We employ "remedies" and recommend them emphatically, then discard them. We use peculiarly-fashioned instruments, which are the only patterns fit for use, until others are produced.

Many years ago, every dentist packed gold with smooth, blunt points. After a time they used sharp points,—then broad-faced, deeply serrated pluggers,—then smaller points with finer serrations,—and now smooth blunt points are much used again. Even polished steel and ivory-pointed instruments are highly recommended, and by men of acknowledged ability.

Formerly, we filled teeth with non-cohesive foil. After a time, various preparations of sponge or crystal gold ruled the market. Cohesive foil was then introduced, and there was no limit to its merits. The wedging process of filling was by many given up, and gold was consolidated by welding layer upon layer. At the present time, non-cohesive foil is again extensively used, and the wedging process resorted to.

Our old foil books were numbered 6, 7, and 8. Our innovators considered the gold too thick, and suggested 4, 3, and 2. A sudden leap brought 60 into the field, and finally, gold two and four times that thickness! "Cylinders," once extensively used, then almost unheard of, are now under consideration again.

The *mallet* has had its share of criticism and its many "trials." Mallets of light wood; mallets of hard wood, hard rubber, ivory, tin, lead, and steel. One is declared too light; another too heavy. One is too elastic; another gives too dead a blow. Many who once strongly advocated the use of the mallet, have ceased to use it.

Now, to my mind, all these things have their merits, if we but exercise proper judgment in their use or application. The difficulty seems to be that we are too radical or too dogmatic. We go to extremes,—where it is said that "truth is not found." Advocates of cohesive foil and they who manipulate thick gold, are apt to make these answer in all cases, while others are equally tenacious in their exclusive use of non-cohesive foil. The motto of one is "solidity;" the other, "adaptation." Why not combine both? And with our instruments, our methods of consolidating fillings, our choice of materials, our selection of remedies, etc.,—why cannot we be eclectic?

Let us more carefully study our cases, become a little less dogmatic, and strive to properly adapt means to ends. This seems the safest course of practice; the surest road to progress; and will tend to insure us against drifting.

## JAPANESE DENTISTRY.

BY W. ST. GEORGE ELLIOTT, M.D., D.D.S., YOKOHAMA, JAPAN.

It is a little remarkable that a nation which places the value they do upon their teeth, and who take the care that is everywhere evident of their appearance, should be ignorant of everything relating to them, other than their mere mechanical substitution.

Taken as a race, the Japanese have not good teeth, neither can they be said to be very bad. Caries, with its resulting odontalgia, is quite common; but the most frequent cause of trouble is the accumulation of tartar. To such an extent is this true that it constitutes the extracting agent of the aged. It is, indeed, rare to find an elderly person with teeth. As might be expected, the principal accumulation is behind the lower orals; these are frequently entirely cemented together by a dense, dark-brown deposit, of a quarter of an inch in thickness. But far more dangerous to the integrity of the organs is the gradual deposit around the necks of the teeth far up under the gums.

With the exception of fish, the Japanese are chiefly vegetarians; their principal food consisting of rice, beans, sweet potatoes, etc. Since foreigners have resided here, the natives have shown a disposition to add meat to their diet. In the streets of the capital, Tokeo, there are numerous stands, kept by wayside merchants, who supply the passer-by with this new foreign notion,—beef-stew.

It is one of the peculiarities of this peculiar land that among the females one seldom meets with beauty, either among the very young or the aged; in both cases they are entirely devoid of color, but in early womanhood it is not rare, nor is color wanting to lend its charm. The teeth of the musmies, or daughters of Japan, are objects of envy, but the horrible custom of blacking the teeth after marriage destroys what little beauty time had not yet stolen.

The natives are a phlegmatic race, and do not feel pain as those of sanguine temperament; not that they bear it better. Their teeth are rarely sensitive, but capping nerves is nearly as apt to bring the patient back as it is elsewhere.

Irregularities are common. Their teeth being large, the jaw is not sufficiently expanded for their proper placement. Considerable care is taken to have the teeth appear white, the native brush consisting of tough wood, pounded at one end to loosen the fibres, when it resembles a paint-brush; it is used with several kinds of powder, red, ash-color, white: they are all of coarse structure, but answer the purpose very well with the soft, wooden brush employed. Owing to its shape, it is impossible to get the brush behind the teeth.

In mechanical dentistry they rank far above any barbarian or semi-civilized nation. In point of fact, I believe they stand alone. Their denture answers admirably the principal object of one, *i.e.* the mastication of food. This, however, applies only to full sets. All full upper cases are retained *in situ* by atmospheric pressure. This principle is coeval with the art. The oldest inhabitant does not know when the principle was introduced.

Owing to the fact that dentistry existed only as a mechanical trade, the status of those who practice it is not high. In a country where class distinctions are so marked, and where the laws prescribe the dress and social position of all, it is graded with carpenters, which fact is shown by their word, *hadyikfsan* (tooth carpenter). Dentistry, to some extent, is practiced as an itinerant business. The carver, taking his seat beside the highway, exhibits his gilded sign, specimens, and material. When not engaged in the all-important business of gossiping, he plies his chisel, shapes a denture, or grinds on a slab a bit of quartz for a tooth. I have said that dentistry does not give social position; neither does it wealth. In full practice a dentist may get two or three cases in a month, and, for some, he may receive as high as five dollars; but that is a price far above the ability of the majority to pay; from one to two dollars being the usual rate.

The base, I am inclined to think, is always of wood. On the cheaper sorts, the teeth are merely outlined upon the base, but generally they consist of ivory, shark's teeth, or stone, let into the wood, and retained in position by being strung on a thread, which is secured at each end by a peg driven into the hole where it makes its exit from the base.

Iron or copper tacks are driven into the ridge to serve for masticating purposes, the unequal wear of the wood and metal keeping up the desired roughness of surface.

To construct a full upper and lower denture requires about two days' constant work. Generally, however, four or five are taken, as there must be time allowed for the usual smokes and occasional naps which are considered so necessary. The ordinary service of a denture is about five years, but they frequently last much longer. The writer has one in his possession that has been in use fifteen years, and is still quite serviceable.

The process of manufacture is crude in the extreme. A piece of wax, large enough to cover the roof of the mouth, is heated, introduced, and pushed up in position by the thumbs; it is then removed, and placed in cold water to harden. Another piece of wax, large enough to make the model, is then heated and applied to the impression, pressed into every part by the fingers, then chilled by placing in cold water, and separated. A piece of wood is now roughly cut to the desired form, and the model, having been smeared over with a red paint (veni), is now applied to the plate; where they touch each other is marked by the paint. This is then cut away, and the process repeated until the plate coats uniformly; it is then tried in the mouth, and any necessary corrections made. They do not seem to be very particular to get a smooth surface, at times not removing the tool marks.

Whether or not these upper or lower dentures can be worn alone I do not know, never having seen them other than double; nor have I seen a single one carved to antagonize with the natural.

As the teeth are not natural in appearance, and don't add to the beauty of the wearer, they are never used for purely ornamental purposes. I will except, however, those partial dentures which are fastened to the adjoining teeth by a piece of thread, they being used only for appearance sake.

Having heard the statement made by foreigners that these sets of teeth were frequently inherited from one generation to another, I have made inquiries among the *trade*, but failed to substantiate it, although from the mode of manufacture there is no reason why one denture might not be made to answer several persons in succession.

## CHRONIC ANÆMIA.

BY J. FOSTER FLAGG, D.D.S., PHILADELPHIA.

CHRONIC ANÆMIA is that weakened systemic condition consequent upon long-continued depressing influences, in which the blood, being deprived of a large proportion of its vivifying power, is in an impoverished condition so far as concerns its capability of responding to the demands of the economy upon it.

The symptoms are generally morbid, or complete want of appetite, imperfect digestion, offensive breath, indisposition for exertion, muscular debility, constipation, nervous derangement, mental depression; peculiar sickly greenish-yellow complexion, dropsical effusions, palpitation, tinnitus aurium, convulsions and pain consequent upon causes which would, under other circumstances, be too slight to produce such results, and which is ordinarily denominated "neuralgia."

The treatment of this kind of anæmia consists in placing the patient under moderate, continuous tonic influences, and the less or more gradual removal of the cause, according to judicious possibility.

The medicinal tonics mostly beneficial are combinations of the preparations of iron; some one of the "bitters," such as columbo, quassia, gentian, etc.; some slight stimulant, such as ginger or pepper, and some such purgatives as rhubarb, senna, sulphate or citrate of magnesia, if there be no uterine complication, or if there be menorrhagia; or *aloes*, together with myrrh, phosphorus, and quinine, if there be amenorrhœa.

In addition to these, *moderate* exercise in the open air, *ostensibly for the accomplishment of some immediate purpose*, journeying by easy distances, short visits to salt air, and long visits to mountain air, the use of the waters of some chalybeate spring, and a judicious apportionment of time as to occupation, reading, enjoyment, rest, sleep, etc., will be found productive of desirable results.

This phase of disease is the source of much trial to the practitioner of dentistry, and in fact is often due *entirely* to troubles, the care of which belongs completely within the limits of our specialty; it is therefore well that we should endeavor to understand it as thoroughly as may be, in order to be able to converse intelligibly and advantageously to our patients upon its bearings, in such manner as to impress our hearers with the conviction that we ascribe to the diseases of the teeth only the absolute importance and power for harm which we *know* they possess in common with many other causes, and *not* in such way as to allow them for a moment to think that an opinion as to the injury which may result from inattention to diseased conditions under our charge is formed in ignorance of the fact that many of the most observing in our profession regard them as all-sufficient to produce the pallid, listless, nervous, prostrated condition of patients which they are called upon to treat.

I have again and again seen changes for the better from this state of chronic anæmia to one of ruddy, smiling health, in an incredibly short space of time, as the result simply of a series of dental operations, and this too with patients whose ailments had bid defiance to medical treatment for months, and in some instances for years. That I do not exaggerate in the least in this statement, will be found by questioning any dentist whose opinion commands the respect of intelligent practitioners of general medicine.

But though our operations in these instances are thus promptly attended with such highly satisfactory results, it is nevertheless true, as I have said, that this condition is a source of great trial to us. Patients do not come into our hands for treatment (as a general thing) until after quite a length of time has elapsed since first the effects of the condition which we are called upon to rectify, were noticed and medical aid resorted to; and it is by no means often the case that they eventually expect to receive at our hands any relief for their systemic troubles, but rather merely an amelioration of their sufferings only so far as their mouth is concerned.

In the performance, then, of our duties in relation to this class of patients, we have to subject a timid, fretful, nervous, irritable, and really sick person to the infliction of an amount of apprehension and sometimes actual pain which many in the enjoyment of good health, both physically and mentally, are not ashamed to shrink from; our conduct toward such should therefore be based upon a full knowledge of their position, a correct estimate of their powers of endurance, a just appreciation of the present necessity or non-necessity of what is usually termed "thoroughness," an almost perfect command of our actions, words, and *even feelings*, and an unlimited amount of charity for their apparently childish behavior.

A professional commingling of firmness and kindness, of thoroughness and gentleness, of anxiety for their welfare, and forbearance for their irritability and timidity, is of incalculable advantage, not in securing many such patients, for that would be undesirable, but in obtaining the confidence and affection of those for whom we do operate, and, through them, the many relatives and friends whose hearts are made glad by their restoration to health through our *instrumentality.*

# EXPERIENCES WITH OXYCHLORIDE.

BY S. S. SOUTHWORTH, NIAGARA FALLS, N. Y.

UNLIKE a number of professional acquaintances, I have *not* discarded the use of oxychloride of zinc, nor pronounced maledictions on those who recommended it as *the* article for capping exposed pulps. I give due credit for instructions in its use to various written and verbal communications in the magazines and conventions.

Three years ago, in a discussion of its merits and demerits before the American Dental Association, a two-thirds majority in its favor induced me to try it, which I did on the first opportunity, and failed. Repeated trials resulted in frequent failures, but with a partial realization of my hopes for a preventive of root fillings and discolored crowns.

My first failures were, I think, due to the hurried and careless manner of the operation, and this I judge to be the case with many others. My subsequent failures I am quite confident were caused by shocks of extreme temperatures, conveyed by metal fillings.

In nearly all the papers upon the subject, we find gold, tin, or amalgam recommended as a filling over the cap, which is to be removed in a few months and the whole cavity filled with gold, providing sufficient osteo-dentine has been formed to warrant it.

To this plan I must decidedly object, as careful observation has taught me to reject any filling which has conductive power to any marked extent. All must acknowledge that the cap is not endowed with sufficient non-conducting power to resist the transmission of heat and cold through metallic fillings. The prevention of decay is only required for a short time, and there are non-conductors that will answer equally as well, and their employment save time to the operator and expense to the patron.

The plan which has led to the best results, and with seldom a failure in my practice, is to remove with a warm injection all débris in the cavity, then partially excavate and apply creasote or thymol to reduce inflammation. At the next sitting excavate thoroughly around the cavity, but scarcely touch the parts over the exposure unless there are loose pieces of carious dentine to remove. After thoroughly drying the cavity, touch with creasote only the part immediately over the exposure, and apply the oxychloride in as thick a paste as will permit of manipulation, pressing it into position with an excavator end, wound with cotton. Too much care cannot be exercised in preventing its contact with the gum and periosteum. Keep dry until the required hardness is secured; excavate around the margin, and complete the filling with White's gutta-percha.

I do not claim that this or any other method will save all exposed pulps, but I *do* claim greater success in forming secondary dentine over moderate exposures of the pulp by this method than by the use of temporary metallic fillings. Even after the "*new bone*" is formed, I consider it advisable to cover it with some non-conducting substance before inserting the permanent filling, as cases are of too frequent occurrence where death follows our best efforts to maintain life.

## OBTAINING A CORRECT ARTICULATION.

BY E. T. STARR, PHILADELPHIA, PA.

NEXT in importance to a perfect impression in constructing a dental substitute, is a correct bite or position of the maxillæ. In whole cases, attach to the ridge of each plate, whether made of metal or wax, a strip of wax a little wider than the length of teeth required. If it is a metal plate, warm it so that the wax will adhere to it. If of wax, heat an instrument, and melt the two together so that they will not separate. The upper strip should then be cooled enough to prevent it from dragging when cut by a knife. Place it in the mouth to ascertain the proper fullness; trim off the labial surface until this is attained, and the proper contour of the face secured. Now trim off the approximate surface until it extends somewhat below the margin of the upper lip. As a general thing, artificial dentures should not in the mouth show as much of the teeth as in the natural set. Now place the lower plate in the mouth; request the patient to close the jaws; cut off of the approximate and labial surfaces until the lips meet in an easy and natural position. Then request the patient to open and close the jaws several times in succession, observing if the wax meets precisely in the same place each time.

It frequently occurs that the lower plate will not remain in its proper place when the mouth is opened, especially where there has been great absorption, leaving the muscles higher than the maxillary ridge, which lifts the plate off of it.

In cases of that kind, a very effectual method is to attach a set of stiff spiral springs (they should be made of steel, as the ordinary silver springs are not stiff enough), having on each end a pin attached, which should be flattened, and long enough to run well into the wax.

Place the plates with the springs attached in the mouth, and request the patient to open and close the mouth, noticing if they meet as before; when the jaws are closed, request the patient to swallow, which will require an effort if the jaws are not in their proper place; or, by throwing the head back, the lower jaw will be drawn into the sockets, and a correct articulation will be attained. The operator should now hold the lower jaw steady and firm, and attach the two pieces of wax to each other by wire staples, bent at right angles, and wide enough to include the line of union between the wax. One or two of these should be placed on each side of the mouth; or, draw lines vertically and diagonally across the wax at several places, which will serve to indicate their relation to each other when out of the mouth. The mesial line should be drawn vertically across the wax, so as to indicate the centre.

In a single upper denture, after following the former directions of trimming the wax, and when the proper fullness and length is attained, request the patient to bite into the wax enough to leave the impression of the cusps of the natural teeth.

There should be an impression of the lower teeth taken when the impression of the upper jaw is procured, to secure the position and shape of the natural teeth, and indicate the character of artificial teeth required; as, where the lower incisors are spread apart, the upper should partially conform to them in that particular. Nothing looks more unnatural than to see an upper dentine with the teeth close together, and the lower teeth spread apart.

In selecting and adapting a set of teeth, better results would be obtained by procuring a photograph of the patient showing the features, and endeavoring to make the teeth conform to the general character of the face.

# CEMENT PLOMBE.

BY THEODORE F. CHUPEIN, CHARLESTON, S. C.

THE preparation bearing this name, as well as those called Guillois's cement, os-artificiel, and oxychlo. zinc, seem to me to be so nearly one and the same thing that I have found it difficult to discriminate. I must add my testimony in favor of them in certain cases. I have been using the cement plombe for two years with considerable satisfaction in cases where a filling of this kind is indicated. I prepare the cavity with as much care as for a gold filling of adhesive foil, and protect it as carefully against moisture,—only that, as there is not the necessity of strong walls for this as there is for gold fillings, I do not cut away thin, transparent enamel when this is left standing. Before filling with this, I flood the cavity well with creasote or carbolic acid. (*Par parenthèse,* I would say that I have lately been using "the glycerole of thymol" for the same purpose—*i.e.* of flooding sensitive cavities—with considerable satisfaction and success.) I then wipe this out dry with spunk, after which I put in a small quantity of the cement, quite thin (about as thick as cream); this flows into every inequality, or if it does not, it can be more readily made to do so of this consistency than when it is thicker. By the time this in the cavity is carried where it is wanted, the rest, which is on the glass on which I mix it, has become a little thicker, and in this state it can readily be carried to all other parts of the cavity. I generally begin and complete the entire operation with a piece of orange-wood whittled quite thin, in the form of a spatula, as it rusts steel instruments. I dress it entirely to the form I desire, and before allowing moisture to touch it, coat it with sandarac varnish or liquid gutta-percha. I have been successful with this in a large majority of cases, and although it gives considerable pain at the time of its introduction, and in some cases for a day, or may be thirty-six hours after, I have generally found the pain to subside and the tooth become comfortable; and this too where I had thought the cases hopeless. In one case I saw the pulp sticking out of the cavity, the exposed part to all appearances dead; but I cut this part off, and after the bleeding had subsided, bathed the wounded nerve with glycerole of thymol and filled with cement plombe, as above described. I have not found it to become quite as hard as the Guillois cement, but quite hard enough to hammer a gold filling on to it in cases where the proximity of the nerve was such as not to suffer the contact of such a conductor of thermal changes as gold. Of course this kind of filling should be "touched lightly," for any operator who makes these "glazier's operations" is building a professional reputation which will not stand the ordeal of professional criticism.

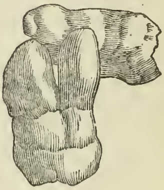
# OSSEOUS UNION OF TEETH.

BY GEO. S. FOUKE, WESTMINSTER, MD.

The two following cases of osseous union of teeth being rare, may deserve a passing notice.

The first is a perfectly developed dens sapientiæ united to the fangs of the second superior right molar, and which, as seen from the cut, was entirely imbedded in the maxilla.

No. 1.



The practical part in this case was the *extraction.* This was effected with less trouble than might be supposed. In the attempt to extract the second molar, it soon appeared that there was something wrong, and the effort to remove it was suspended, and a thorough examination made. In the second attempt, the force was very cautiously applied, to find what direction the tooth would take. It yielded most to an inward motion, and by a continued effort in that direction the removal was effected with only a slight fracture of the lingual border of the alveolus.

The second case is the union of three temporary teeth, namely, the lower *incisors* and left *cuspid.* It is a rare specimen of osseous union, forming a section rivaling an artificial block of the best manufacture.

No. 2.

Thinking that to be fully appreciated these specimens must be seen, I take pleasure in submitting them for your inspection, and request that after your examination of them they be contributed as rarities in dental development to the museum of the Philadelphia Dental College.

# A CASE IN PRACTICE.

BY J. DE HAVEN WHITE, M.D., PHILADELPHIA.

Mr J., aged about twenty-five, of nervo-sanguine temperament, called upon my friend, Dr. F. R. Thomas, to have four teeth extracted. They were the first molar and bicuspids of the lower jaw, and the first bicuspid of the upper jaw, same side. The teeth were to all appearances sound, and the doctor refused to extract them, in spite of the persistence of the patient, who was referred to me for examination.

I found the aching teeth all sound, and no diseased tooth on that side of the mouth. There was a small filling in the first molar of the upper jaw, right side. I learned, upon inquiry, that this tooth had been filled some three months before by Dr. W.; that when the excavation of the cavity caused pain the operation had been suspended, and a preparation inserted, with instructions to the patient to return in three hours, and that the sensitiveness had by that time disappeared. The patient further informed me that the tooth had never given him pain before or since the operation.

Suspecting that the removal of this filling would give a solution of the trouble, I secured the assent of the patient after some considerable hesitation, and found, as I expected, a small opening into the pulp cavity corresponding to the anterior buccal cusp of the tooth,—the pulp partially devitalized. I destroyed and removed the pulp, and in due time refilled the tooth, and there has been no further pain in the condemned teeth.

Had Dr. Thomas been a reckless operator, these four teeth would have been sacrificed, without giving the patient any relief from his troubles.

This kind of cases occur almost every day, and are a consequence of the *hasty* method of obtunding sensitive dentine, and carelessness in the performance of dental operations and the treatment of dental pulp.

# PROCEEDINGS OF DENTAL SOCIETIES.

## ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

A MONTHLY meeting was held Thursday evening, November 2d, 1871, in the Philadelphia Dental College.

Dr. McQuillen exhibited the skull of a large alligator that had been killed in Florida, by Mr. W. McL. Dancy, and presented by him to the Philadelphia Dental College. He said the dentition of the alligator offered an interesting subject for study to the dental student. The teeth vary in number from $\frac{18-18}{18-18}$ to $\frac{22-22}{22-22}$. During the entire life of the animal the number of teeth remain the same; the young one just emerging from the shell having the same number of teeth, although of course very small in size, that it would have on acquiring its full growth or in extreme old age. (In illustration of this fact, the jaws of several alligators of different ages were exhibited by the speaker.)

The teeth are conical in form, and of unequal size. The first and fourth teeth on each side of the lower jaw are received into cavities or fossæ that are formed in the premaxillary bones and palatal surface of the upper jaw. It is stated by Prof. Owen that, "in old individuals, the upper jaw is perforated by these large inferior canines, and the fossæ are converted into foramina." According to the same authority:

"In the crocodiles (genus *Crocodilus*), the first tooth in the lower jaw perforates the palatal process of the premaxillary bone; when the mouth is closed, the fourth tooth in the lower jaw is *received into a notch*, excavated in the side of the alveolar border of the upper jaw, and is visible externally when the mouth is closed."

Again: "In the gavials (genus *Gavialis*), the teeth are nearly equal in size and similar in form in both jaws, and the first as well as the fourth tooth in the lower jaw passes into a groove in the margin of the upper jaw when the mouth is closed."

Upon these slight differences in the articulation of the lower teeth with the upper jaw is based the distinctions which distinguish the genus *Alligator* of the American waters, the genus *Crocodilus* of the Nile, and the genus *Gavialis*, or the garrhial of the Ganges, from each other.

All of these animals are constantly shedding their teeth by the gradual process of nature, or they are torn out in the violent conflicts with other creatures in the struggle for existence. Ample provision is, however, made to promptly supply the loss sustained by the exuviation of the old teeth. In illustration of the plan by which a continuous supply of new teeth is maintained during the long existence of these cold-blooded reptiles, a tooth was extracted from the skull of the alligator, and its base found to be partially absorbed, with a large opening into the pulp cavity; while lying in the bottom of the alveolus, from which the tooth had been removed, was found a cone-shaped cap of dentine belonging to the germ of the succeeding tooth. During life, as this increases in size, it presses upon the root of the preceding tooth, which is rapidly absorbed and eventually thrown off. In some instances the speaker had observed in the skulls of crocodiles and gavials in the Academy of Natural Sciences, on removing a tooth, that the successor half-formed had below it the germ that would eventually have occupied its place. By this arrangement the process of succession and displacement of the teeth is kept up, for no sooner has the young tooth penetrated the interior of the old one than another germ begins to be developed from the angle between the base of the young tooth and the inner alveolar process.

Dr. McQuillen also showed, under one of Beck's binocular microscopes, a section of the molar tooth of a cat, presented to him recently by Prof. O. W. Holmes. The specimen prepared by Bicknell, of Boston, was one in which the vessels of the dental pulp, periosteum, and alveolar process had been injected with carmine. It was admirably adapted for class demonstration.

A meeting was held on December 5th, 1871, Vice-President Dr. J. L. Eisenbrey in the chair.

Dr. McQuillen read a paper on Japanese dentistry (see page 5), and exhibited specimens of their mechanical work, tooth-brushes, etc., and some Japanese paper for drying cavities, sent to him by Dr. W. St. G. Elliott.

Dr. Eisenbrey preferred wax for taking impressions when the palatine portion of the mouth was soft, for in pressing the wax in position it would displace the soft parts; in his experience, it was more satisfactory than plaster.

Dr. Litch takes a wax impression, and then trims it off from one-eighth to one-sixteenth of an inch, and then uses this for taking a plaster impression. This method requires more time, but the result is more satisfactory.

Dr. Wunderlich had been using wax exclusively till within a short time. Now uses plaster, and with gratifying results.

Dr. Long, in taking partial impressions, oils the cup, which leads to its separating from the plaster, leaving it in the mouth; then takes a large hatchet-shaped excavator, and cuts it so as to make it break in sections. The method of taking a wax impression to form a cup he had found objectionable, for when it breaks, the pieces could not be replaced on account of being so thin. Taking wax impressions such as Dr. Eisenbrey spoke of, he thinks is not practical, for the soft parts would have a tendency to return to their normal position, and this would loosen the plate.

Dr. Trueman uses plaster for taking partial upper impressions, by adapting wax around the labial surfaces of the teeth, and then uses this to take the plaster impression. In lower cases he uses wax, and when there are teeth remaining, he swages up an impression-cup of copper and takes the impression in this; uses the vacuum chamber in all the plates he makes.

Dr. Eisenbrey. When a plate is made from a plaster impression of a soft mouth the plate will tilt; prefers the cup without the wax in using plaster.

Dr. Long. By letting the patient close the lips and blow and distend the cheeks, the impression would come out much easier, and sometimes it would drop down without further trouble.

Dr. Bonwill had not taken a wax impression in twelve years; he used plaster in all cases. Uses vacuum chambers only when the patient had worn a plate with one in before.

Dr. Eisenbrey. The method Dr. Long spoke of, in allowing the patient to close the lips and blow to distend the cheeks to aid in removing the impression, is in effect the same as to raise the cheeks with the finger.

Dr. McQuillen had tried the paper exhibited by him, and found it to be more efficacious than bibulous paper. Its capillary properties are greater, and when moist it will hold together like cotton. It can be made into a rope, and passed up the pulp canal; had found it of special advantage over cotton for this purpose. He thought that if the paper was saturated with oxychloride of zinc it would make an excellent filling for pulp canals. This method had been suggested to him by Dr. Bogue, with the exception that he used cotton.

Dr. Bonwill used wool for filling the pulp canals, and found it more satisfactory than anything he had ever used. He recalled a case in which he introduced gold, tin, and cotton, some twelve years ago, and could not see any difference in the results.

Dr. McQuillen had not found cotton fillings satisfactory, and in some instances when he had been compelled to remove such fillings the odor was very offensive.

Dr. Bonwill exhibited three roots that he had filled with gold some eight years ago. They were filled solid to the apex of the roots.

Dr. McQuillen. If the canals are filled with gold to the apex of the root, it was undoubtedly the best operation. Those who use the cotton for filling say that the advantage of this method is, that if the tooth gives trouble the filling can be removed. For his part, he did not introduce fillings on that principle. As a rule, he put them in with the intention of having them remain in. In exceptional cases he would adopt that plan.

Dr. Bonwill could fill with gold and with tin, but found cotton to be as reliable as either of them. He did not fill the roots till they were in a condition to fill permanently. A few days ago he had tried to remove a wool filling, and did not succeed in getting it out. If he had his choice, he would rather remove a gold filling than a wool one.

Dr. Eisenbrey thought that the great trouble with those who tried the cotton filling and reported failures, was due to the fact that the operation was not performed in a thorough manner. He believed cotton to be the best filling for pulp canals.

Dr. Litch. If there was a portion of the pulp happened to be left in the canal which caused gases to arise, the cotton filling would absorb them; on this account he thought it a desirable filling.

## BROOKLYN DENTAL SOCIETY—REPORT OF DISCUSSIONS.

### Treatment of Sensitive Dentine.

Dr. A. H. Brockway. Dentistry, which Prof. Austen has so felicitously defined as "the science of medicine applied to the dental organs," is, in its present best expression, confessedly one of the most exhausting occupations, taxing both body and mind to a degree scarcely realized even by its practitioners; making such constant demands upon their sensibilities and sympathies, by reason of the painful nature of most of its operations, that it would almost seem surprising to find fit men, men of delicacy of feeling and organization, willing to engage in it, much more to find, as happily for mankind we do, numbers of such following it, so to speak, *con amore.*

Time was when the case was different; the highest expression of dental science and skill then being mainly shown in the indiscriminate extraction of carious teeth, even though but slightly affected, and supplying their places with those "counterfeit presentments" with which we are all too familiar; a course of treatment having for its chief recommendation celerity of performance, and involving but a brief if poignant amount of suffering on the part of the patient, and a proportionate short demand on the sympathy of the operator.

In these better days, through the light of increasing knowledge, a more conservative and creditable practice has obtained, and our best efforts are directed to saving and restoring to usefulness those priceless organs which, aforetime, we felt obliged to sacrifice. Hence it comes to pass that, for most of our time, we are at work upon living, sensitive tissues, responding to every touch of the instrument with a vivid twinge of pain, to cause and witness which daily and hourly, without being ourselves affected through our sympathies, implies an indifference to the sufferings of others which, I trust, none of us can justly be charged with.

Moreover, the difficulty attending the preparation of a sensitive cavity has doubtless tempted many to complete the operation in hand without that thoroughness which is such an essential condition for lasting benefit, and every one has felt the need of some means of overcoming the difficulties which this condition presents. It is not surprising, therefore, that the "Treatment of Sensitive Dentine" has been a frequent topic of discussion in all our society meetings, and in the pages of our dental journals,—a topic seemingly always in order and never exhausted.

Various have been the means employed to mitigate the pain attending the preparation of a cavity in a carious tooth. I shall briefly allude to some of them in more common use.

First, in point of potency, may be named arsenic, an agent which, from the certainty with which it accomplishes the purpose, was at one time in not unfrequent use; and doubtless those who employed it gained among their patients somewhat of repute for their painless manner of operating. But if there are any here present who have ever made much use of the article for the purpose indicated, I think they will bear witness that the advantage gained thereby had its *drawbacks*, in that they often had before long, in place of sensitive dentine, to deal with the more formidable foe, a *dead pulp*. Says Mr. Tomes, in speaking on this subject, "A minute quantity of arsenic placed in the cavity and retained for a few hours, will render the part perfectly insensible to pain. But the action of the arsenic is not always limited to the surface of the dentine. It finds its way to the pulp, and occasions the death of that organ." What follows we well know.

Next in order I may, perhaps, name the chloride of zinc, an article possessing strong claims to favor, without the dangerous properties of the first-named agent, but giving rise in its application to a considerable degree of pain,—of a very transient character, however. Used in the progress of an operation, it requires frequent removal, for its action seems to be extremely limited, although, so far as that action extends, it produces the desired result.

Similar in its nature and action is chromic acid, an article that has been made use of to some extent, but which from its spreading, corrosive nature; has met with but little favor, and despite its beautiful color, has been generally condemned.

Creasote, chloroform, camphorated spirits of wine, sulphate of morphia, tannin, etc., applied on a dossil of cotton, or sealed up for a time in the cavity, have all been tried with various degrees of success; but their action has often been so unsatisfactory that many dentists have dispensed with their habitual use, and place their chief reliance upon a sharp instrument, a firm hand, and an encouraging word to the patient.

I confess that these are means not to be despised or lightly foregone. In conjunction with a method which I have employed for some time past, and of which I have made mention in this society and elsewhere, I think they are more *simple*, *reliable*, *safe*, and *effectual* than any which I have named,—and I believe I have tried them all,—I allude to the practice of keeping the cavity *perfectly free from moisture* during the whole operation of excavating and filling. That it is important to keep the cavity dry during the introduction of the filling I have, of course, always known and acted upon, as we all do; but, so far as I am aware, it has never been the practice to take any special care on this point during the process of excavating. It was by no forethought of the advantage which I claim in the direction of the subject under consideration, that I was led to adopt the practice of securing the cavity from moisture at the outset of my operation, which I need not say is generally done by the use of the invaluable rubber dam; but having some time since procured and put into use one of Green's pneumatic burring engines, I thought I could increase its effectiveness by working with the cavity dry, so that the chips which are so rapidly formed could be easily removed, by a jet of air blown into the cavity with an air-syringe.

Acting on this idea, I presently observed that my patients seemed to suffer less during the preparatory process than was usually the case, so that it was not seldom those who had formerly been under my hands thanked me for being "more merciful this time." At first I attributed this desirable result to the rapid motion of the bur driven by the engine, —and I still think it produces less pain than hand instruments,—but more extended observation has confirmed my opinion, that most of the immunity from pain claimed is due to the fact of the cavity being *kept dry.*

I do not wish to be understood as asserting that by this means all pain is done away with, but I am confident that it is *greatly diminished.*

I trust I have not grown hard-hearted of late, yet I confess that for some months past I have not felt obliged to make use of any of the usual agents for obtunding the sensibility of dentine.

How, it may be asked, does dryness affect the sensibility in the way claimed? I think the explanation is not difficult, as a reference to the structure of the dentine will show. A careful examination of this substance shows it to be pierced with an infinite number of minute openings, running from the central pulp chamber towards the surface of the tooth. Recent investigations seem to have pretty clearly demonstrated that these openings, instead of being simply filled with a fluid, are tenanted by a soft fibril passing from the pulp into the tube, and following its ramifications. I quote again from Tomes: "With proper care in manipulating, nothing is more easy than to demonstrate the existence of the dentinal fibrils in any tooth which has been recently extracted. If a thin section be made in a place parallel with the direction of the tubes, and then placed in dilute hydrochloric acid until the whole or a greater part of the lime is removed, and the section be afterwards torn in a direction transverse to that of the tubes, many of the fibrils will be seen projecting from the torn edges."

Now, one office of these fibrils, whether we concede them to be nerve substance or not, seems to be to conduct sensations to the great nervous centres.

By the application to them of agents which destroy their structure by uniting chemically with some of their constituents, arsenic, creasote, chloride of zinc, etc., we deprive them of the power to transmit sensations; similarly, I conceive, a like result is obtained by depriving them of that moisture which, in common with all the soft tissues of the body, forms so large a portion of their bulk, and which a moment's reflection will show is so necessary to the performance of *any* vital action.

Dr. W. H. Atkinson. All normal dentine is sensitive until completely calcified. Operators upon the teeth may easily convince themselves of this by making mechanical or chemical applications to exposed portions of dentine, whether that be affected intentionally or accidentally.

Temperament and diathesis lay at the foundation of the degrees of sensitiveness. Wherever an acidulated condition of the juices of the flesh obtains, hyper-sensitiveness of the dentine will be present in marked degree. Alkaline treatment relieves all such tenderness.

Alkalinity of the juices of the flesh, such as occurs in scorbutic affections, also will induce hyper-sensitiveness of the dentine. Such cases are best treated by acidulated remedies locally applied, and constitutionally administered.

The one remedy for both conditions, now most used in cases of doubt as to acid or alkaline origin of sensitiveness, I regard glycerole of thymol, faithfully applied, as decidedly the choice. What I mean by faithful application, is complete cleansing of the cavity and drying by bibulous paper, so as to be sure that the thymol shall not be diluted when applied directly to the denuded surface upon a pellet of cotton, afterward sealing the cavity by dropping on melted wax, to prevent leakage and maintain contact.

There is but one objection to the use of the glycerole of thymol as an obtunder of sensitive dentine, viz., in very susceptible subjects, the glycerin and alcohol excite momentary pain upon the application, which, however, soon subsides, and it is only necessary to assure the patient that the battle is between two enemies, and is sure to be won by the one in the favor of the normal forces. In fact, thymol has in a superlative degree all the virtues of creasote, when locally applied, as a disinfectant, narcotic, stimulant, and when pure, an escharotic remedy, with this great advantage, of being pleasant to the olfactories of all the patients yet interrogated upon this point, for it really imparts a very pleasant odor to the mouth and breath.

I now confidently hope and most earnestly pray that each one aspiring to rank as a dentist will no longer resort to that demoniac remedy for sensitive dentine, "*accursed arsenious acid*," as the advocates of painless dentistry so lamentably have done.

These so-called "gentle, easy operators" for delicate ladies and feeble children, have proved themselves the veriest renegades from the performance of efficient kindliness in practice and beneficence in results, for nearly every good family presents one or more cases of pulpless teeth, alveolar abscess, or vacant jaws, as the result of the misnamed "humane practice," in at least two cities to my knowledge, viz., New York and Philadelphia.

Let all such as still hold to this wicked practice either abandon it at once, or leave the profession in the hands of men incapable of such barbarity.

Dr. G. A. Mills. Sensitive dentine can be treated, like all the disturbed parts of the human system, with success, simply by diagnosing the case properly according to the indications presented, and then acting as the necessities of the case demand. Sometimes perseverance, a firm hand, and a sharp excavator will meet the exigencies of the case, but not always, and we be at all humane.

Palliative treatment is as necessary in very many cases as in any inflammatory action.

Scientific knowledge is necessary in order to secure a successful issue, and by this I mean *relief from suffering*, and success in the operation that is in view, which necessitates careful treatment.

The true knowledge of the structure of dentine and its contiguous parts, coupled with an understanding of pathological conditions and the action of therapeutical remedies, is the only safe chart for the combating of sensitive dentine, and he who demands less does not walk in the light.

John C. Wyman, *Reporter.*

## BIOLOGICAL AND MICROSCOPICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES.

The annual meeting was held Dec. 4th, 1871, W. S. W. Ruschenberger, M.D., Director *pro tem.*, in the chair.

Dr. Richardson, the Recorder, read the following report:

In accordance with that regulation of the section which requires the Recorder to lay before you a written report of the transactions during the year in our department, I have the honor to submit the following summary of scientific labor accomplished within the past twelve months; and while it is incontestably true that this exhibit cannot compare favorably with those of other like periods, it must, I think, be admitted that evidence is thereby afforded of an earnest determination to keep alive some interest in the study of microscopy.

Valuable donations have been from time to time received from Dr. J. J. Woodward, of the Surgeon-General's Office, at Washington, consisting of specimens of his admirable micro-photographs of histological preparations, test objects from the diatomaceæ, etc.

Among the more important contributions laid before the department may be mentioned one from Dr. James Tyson, on a method of demonstrating the reversal of light and shade occurring in the Red blood corpuscle under microscopical examination, which was subsequently printed in the *Philadelphia Medical Times;* one from Dr. J. H. McQuillen upon a remarkable example of hypertrophy of the roots of a molar tooth, the specimen being first exhibited to the members in its natural state, and its constitution being afterwards demonstrated by carefully prepared and mounted sections; another from the same gentleman on imperfections in the Enamel of teeth, producing microscopical fissures, which constituted predisposing causes of caries, his remarks being published in the *Medical Times* and Dental Cosmos, and subsequently reprinted in the *London Microscopical Journal;* an interesting contribution (also illustrated by specimens) upon intermittent Hæmaturia, from Dr. James Tyson, which likewise appeared in the *Medical Times*, and was republished by various medical periodicals; one from Dr. Tyson on the existence of true Haversian canals in hypertrophied cementum; communications from Dr. Tyson and Dr. Richardson in regard to the use of Acetate of potash solution as a preservative fluid for microscopical specimens, and one from the latter observer on the detection of pulmonary Elastic tissue in the sputum of phthisis.

In conclusion, I would, unless we intend to abandon our efforts, respectfully urge upon my fellow-members the adoption of the proposed change in our existing arrangement for holding the meetings of the department, in the hope that by reducing the frequency of our meetings the diminished number of earnest students of microscopy who remain will be able to present in rotation, according to a systematic plan, on each stated meeting, some written or oral communication, illustrated by specimens, which may serve as a subject for discussion, and render the proceedings of sufficient value and interest to secure the general attendance of our own members as well as other scientific men.

On motion of Dr. Tyson, it was resolved that Art. XVII. of our Regulations be amended so as to read, "The stated meetings of the section shall be held on the first Monday of each month, except July and August, at such an hour as may be fixed by the section."

Also, on motion of the same gentleman, it was resolved that the Recorder be directed to announce upon the notices the name of the author and the title of his paper proposed to be read at each stated meeting of the section.

The election of officers next held, resulted in the choice of the following gentlemen, to serve for the ensuing year:

*Director.*—W. S. W. Ruschenberger, M.D.
*Vice-Director.*—James Tyson, M.D.
*Recorder.*—Jos. G. Richardson, M.D.
*Corresponding Secretary.*—J. H. McQuillen, M.D.
*Treasurer.*—Isaac Norris, M.D.
*Conservator.*—Wm. H. Trueman, D.D.S.

J. G. RICHARDSON, *Recorder.*

## MAINE DENTAL SOCIETY.

THE sixth annual session of the Maine Dental Society was held in Lewiston, Aug. 15th and 16th, 1871. President, Dr. Thos. Fillebrown, in the chair.

The following gentlemen were chosen officers for the ensuing year.

*President.*—Dr. J. B. Fillebrown, of Winthrop.
*Vice-President.*—Dr. Henry Leavitt, of Skowhegan.
*Secretary.*—Dr. E. J. Roberts, of Augusta.
*Treasurer.*—Dr. W. R. Johnson, of Portland.
*Executive Committee.*—Dr. E. Bacon, of Portland.

Drs. C. M. Bailey, of Machias, Chas. Hussy, of Biddeford, J. W. Haines, of Lewiston, were elected active members of the society.

Dr. Stevens, delegate from the Merrimack Valley Dental Association, addressed the society upon the necessity of thorough dental education.

Dr. Johnson read an essay on "Antiseptic Treatment."

The retiring president, Dr. Thos. Fillebrown, read a well-timed address on "Dental Education."

A discussion upon "Alveolar Abscess" was opened by Dr. Waters. In its worst form he adopted the practice of extracting the tooth, filling it, filing a little from the apex of root, and immersing the tooth in an aqueous solution of carbolic acid; removes the sac, and washes with a solution of sulphate of morphia; then replaces the tooth, and ligates it. There is usually much soreness for a few days, but he has met with good success.

Dr. Roberts read an essay upon the "Properties, Proper Method of Administration, and Physiological Action of Ether, and the Pathological Conditions of those under its Influence."

Dr. Chamberlain read an essay on the "Manufacture and Administration of Nitrous Oxide."

Several subjects were discussed. Dr. T. Fillebrown demonstrated Dr. Shumway's method of packing gold with ivory points, keeping the gold burnished, using very gentle pressure. The tests applied proved the gold to be completely welded, but not dense. For susceptible patients, and in localities protected from the wear of mastication, it was thought the method might be valuable.

Adjourned to meet, in February, at Portland. The annual meeting to be held at Augusta.

E. J. Roberts, D.D.S., *Secretary.*

## FIRST DISTRICT DENTAL SOCIETY OF NEW YORK.

Clinics are held on the first Tuesday of each month, at two o'clock p.m., at S. S. White's Dental Depot, corner of Broadway and Ninth Street.

The following-named gentlemen have been appointed to operate:

*December.*—Dr. Oldham and Dr. Reynolds.
*January.*—Dr. Atkinson and Dr. Palmer.
*February.*—Dr. Bogue and Dr. Bronson.
*March.*—Dr. Carr and Dr. Grout.
*April.*—Dr. J. S. Latimer and Dr. Hodson.
*May.*—Dr. Jarvis and Dr. Geo. Allan.
*June.*—Dr. C. E. Latimer and Dr. Merritt.

R. W. Varney,
C. E. Francis, } *Committee on Clinics.*
J. S. Latimer,

# CLINICAL REPORTS.

## UNIVERSITY OF PENNSYLVANIA.

### Clinic of James E. Garretson, M.D.

REPORTED BY DE FOREST WILLARD, M. D.

### Neuralgia dependent upon Granules of Osteo-Dentine.

This man, fifty-six years of age, comes to us with a neuralgia which has existed for years. Now, neuralgia—nerve-pain—is not a disease of itself, but is dependent upon a cause, which cause may be either evident or concealed. There may be cases where present knowledge is insufficient to enlighten us, but this is no proof that a source does not exist, and we must not remain quiescent in our ignorance while there is an organ or tissue in the body which has not been interrogated and examined.

Those of you who were present last year will remember an old man who had suffered with this disease for sixty years, yet was cured by simply removing the exciting causes of nerve irritation,—several old fangs and worn teeth. If, then, pain is but the result of a cause, can you not see that nervines are useless, save as they accidentally reach the mark and alleviate pain by their anodyne properties, and that the only hope of cure is in the discovery and removal of the cause or causes?

The point affected with neuralgia seldom gives any of the common evidences of inflammation, and the nerve structure is but rarely sensibly altered, save when the irritation has been long continued.

This man locates his points of pain along the various branches of the fifth pair of nerves, which is the nerve of sensation to this portion of the body. The three points of emergence of the several branches upon the face are respectively the supra- and infra-orbital and mental foramina. An irritation applied to any one of these branches is capable of arousing all the others, producing intense neuralgia. Thus you can easily see how defective teeth may be the cause of such a result, since the second or superior maxillary nerve supplies all the teeth of the upper jaw, while the inferior or third branch performs a like office to the lower ones. It is undoubtedly true that a large number of the cases of facial neuralgia, tic-douloureux, are due to dental causes, and may very properly be called neuro-odontalgia. Other causes for facial neuralgia may truly often exist in necrosis, bony tumors, rheumatism, anæmia, hysteria, constipation, etc., but the teeth are by far the most fruitful agencies, since they are liable to so many diseases; anything and everything in short which acts as a depressant to the vital economy, whether by over-stimulation or under-nutrition, is to be considered in all neural derangements. In addition to those above mentioned, over-study, indigestion, fear, melancholy, excessive indulgence in venery or tobacco, may all tend to precipitate an attack.

The use of tobacco does certainly have a marked effect upon this disease, and many cases can be cured or greatly alleviated by the simple discontinuance of its use. Its effect in producing non-assimilation of food must at least act very injuriously, and the lives of many men are greatly shortened thereby, although this cause may be so occult as to escape detection.

Taking the standpoint then that all neuralgia is due to a cause, and that neuralgia of the fifth pair of nerves is largely due to irritation reflected from the teeth, let us see what are the chief causes of such a neuro-odontalgia.

Those of you who recall my lecture of a year ago, will remember that I divided these causes under nine heads, which I will here repeat for the benefit of those who have since entered the class. They were:

1. Sensitive dentine.
2. Direct or indirect exposure of dental pulp.
3. Confinement of pus or gas in pulp cavity.
4. Diseased state of periodonteum.
5. Recession and absorption of the gum or alveolus.
6. Eruption of wisdom teeth.
7. Abrasion or wearing down of teeth.
8. Sympathy.
9. Granules of osteo-dentine in the pulp.

Now let us take these as our guide, and see if we can assist this man.

1st. *Sensitive dentine* would be indicated by a peculiar susceptibility to irritating agents or atmospheric changes, as sweetmeats, heat, cold, etc. This is due to the uncovering of the dentine and enamel membrane from the loss of the enamel coating. Such sensitive teeth would quickly respond to touchings of the exposed parts; but this man gives no indication of any teeth thus diseased, and we pass on. Should this condition have existed, we should either have had the cavity filled, or the end of the tubules polished down as a temporary resort.

2d. *Direct or indirect exposure of dental pulp.*—The pulp cavity being filled with arteries, veins, and nerves, has not room to accommodate these structures, save in a normal condition, consequently any irritation which produces a congestion will necessarily crowd the nerves and cause pain. Such irritation will be readily produced by external causes whenever the pulp is nearly or quite exposed by deep caries. Its cure would demand the immediate application of sedatives to relieve the pain, followed by the destruction of the pulp with arsenic or other agents.

Improper filling of teeth may also irritate the pulp, especially if two materials, or the preparation known as "tooth bone," are used, the galvanic action in the former, and the chloride of zinc in the latter, often setting up severe inflammation.

The man before us has no extensive cavities in his teeth, either filled or open.

3d. Death of a tooth-pulp is frequently followed by decomposition, the result of which is pus or mephitic gases. These, when confined, must press upon the foramenal aspect of the nerve, and as a consequence, reflected irritation would give rise to odonto-neuralgia, and even to odonto-gastralgia, odonto-cardialgia, etc.

Such a condition would be diagnosed by a loss of translucency, caused by absorption of these dead materials into the dentinal tubuli; or by opacity, which could be exhibited by reflecting upon it the rays of the sun, through the means of a hand-mirror; but I discover neither of these conditions in this patient.

The treatment for such a case would be extraction of the tooth, or opening into its pulp by a drill.

4th. Has this man then a periodontitis? If he had, the tooth or teeth implicated would be sore to the touch, and occlusion of the jaws would give great pain, since a diseased state of this membrane must necessarily lift the tooth a little from its socket and render it more prominent than its fellows. He has no such teeth, nor has he any old fangs.

5th. *Absorption of gums or alveoli.*—His teeth and gums being apparently in position, we will infer that this is not a cause.

6th. The sixth cause may be also passed over, as his wisdom teeth appeared many years since.

7th. *Abrasion or wearing down of teeth.*—I look in his mouth, and find that they are sharp and uninjured.

This abrasion in old people, or in those whose teeth do not rightly approximate, is often a serious cause, since the pulp must necessarily be encroached upon, unless, as sometimes occurs, a deposit of secondary dentine gradually builds up a protective wall.

8th. Sympathy exists between corresponding teeth as between all other corresponding organs of the body, and a pain may thus be reflected upon the fifth nerve.

9th. We have come to our last chief cause, and yet we have discovered nothing,—absolutely nothing which would account for this sad condition. This ninth cause is rather a rare one, and difficult to diagnose except by exclusion, yet as we have found nothing else, and as we know there must be a cause somewhere, let us look at this aspect of our case closely.

What are granules of osteo-dentine? Little masses of semi-bonelike material, formed in the pulp cavity, as the result of a peculiar form of irritation, and from causes frequently unknown. Where these exist, their presence is quite apt to give rise to most excruciating pain, and as they are permanent, the result must be likewise.

Teeth thus affected may give no external appearance of the presence of their internal occupants, but present every indication of health; no discoloration, no soreness, and oftentimes no local pain, this manifestation being situated at some other portion of the body, as the eye, ear, scalp, or face; sometimes along the branches of the fifth pair of nerves, sometimes even more remote. This pain is paroxysmal in character, and is usully treated for idiopathic neuralgia, the cause being unrecognized.

Let us examine all these teeth separately and individually. I tap each one gently, but elicit no response of pain. I strike them with a little more force, and now, as I reach the second upper molar of the right side, I think the man winces a little. He says it does not hurt him, yet it seems slightly different from the others. This seems a trivial thing upon which to establish a diagnosis, and yet as I have looked so carefully and have found no other cause, I am inclined to investigate further, and remove this tooth. You may say that this is a leap in the dark, and yet I do not feel that it is as much in the dark as is the common practice of pouring a score of nervines into the patient's stomach, trusting that one of them may reach the mark. So confident am I, that I am willing to take the risk of an error before this class, and leave the result to your judgment. I do not say that this is the exact tooth, but I think it is in the neighborhood,—and we must take a little uncertainty. Suppose that we do not extract the right one, granting that there are granules in some of the teeth, yet we are doing the best that we can under the circumstances, and our treatment is, I think, rational.

I will now remove this second upper molar, cut it open, and give you the result next week.

*Nov. 25th.*—Here is our patient again, and here is the extracted tooth. I will pass it around the class, and as you look in that pulp cavity you will see a little hard nodule. It is osteo-dentine I inferred to exist. Now, what was the result of the extraction? For two days the man was free from pain, and thought himself relieved, but at the end of that time it returned, seeming to concentrate, or localize, or fix itself in the region of the next tooth,—the first molar. Now, what is the inference? You see that we found one cause, yet it is more than probable that similar nodules exist in this tooth also. Is not extraction the plain indication? Most certainly, for our past experience has shown us that we are working in the right direction, and that our diagnosis was sound. We therefore take it out, and, as I split it open, you see in its interior not a nodule of osteo-dentine, but a mass of material of almost bony density, filling up the entire pulp cavity. I think I have never seen a more perfect and extensive specimen of its kind. It is most certainly a sufficient cause for all the neuralgia, and we may confidently hope for improvement, unless other teeth are similarly affected. Whether such is or is not the case, time alone can determine,—if they are diseased, they will also require removal or other treatment. But shall we go on and render this particular patient toothless? I believe it would be rational to do so, since that would be preferable to a life of fearful suffering, and of two evils we must choose the least. I trust, however, that this will not be necessary ; still, if this is the last of the diseased teeth, his pain ought to cease; if it is not, then cessation will date from the removal of that final one. Bear in mind, however, that a long troubled and irritated nervous system may require some considerable time in which to become calm, even after the storm has passed.

# EDITORIAL.

## VALEDICTORY.

THE day on which this number of the magazine is issued will be the twenty-fifth anniversary of my connection with the dental profession. Of this quarter of a century of professional life, a considerable portion of the latter half has been absorbed by duties incident to editing the DENTAL COSMOS. As already announced by the publisher, my editorial connection with the magazine has closed.

In retiring from the relations which I have held towards my professional brethren for so many years, it is with a sense of decided relief. For with professional engagements and collegiate duties demanding every hour of the day that can be used for working purposes, it necessarily follows that scientific or literary labor which may be superadded, must be performed at night, and at a time that others would devote to the social circle or to rest. Well do I recall a visit from two intimate professional friends immediately after having consented to act as an editor. Both remarked, "Had you not enough to do, with your practice, lectures, and efforts in other directions, without adding to them the rôle of an editor?" "Well," said one, "I give you a year, and then a lot in Woodland Cemetery." "No," said the other, "I give you two years, and then a residence in Kirkbride's Insane Asylum." The predictions of my friends fortunately were not verified, but the strain at times upon mind and body has been severe enough to tax to the utmost endurance the mental and physical powers. I do not refer merely to the preparation of my own articles, reviews, etc., month after month, for a series of years, but to the perusal of innumerable manuscripts from contributors, many of them written in an almost illegible hand ; to the voluminous correspondence involved in the acceptance or rejection of these articles, and on every conceivable subject connected with the principles and practice of the profession ; to proof-reading; and to the fact that like Banquo's ghost, the work to be done was an ever-present object to the mind. This is alluded to with no feeling of regret in relation to the past, for the experience has been a valuable one to me, but as time passes on after the meridian of life has been attained, the capacity for continuing under such a strain with safety becomes less and less each succeeding year, and it is therefore a fortunate thing to retire with body and mind in a sound condition, prepared to concentrate my energies upon the faithful performance of the obligations to patients and students, and with the intention of devoting any leisure moments that may offer to original investigation.

In the discharge of the editorial duties, the primary object has been the elevation of the professional standard to the highest possible point of excellence. Recognizing that this could not be promoted by harping upon a single theme, the effort has been made through the medium of editorials and other communications to touch every chord likely to secure a response, tending towards awaking the desire for *self-culture* which is the characteristic of the age, that would result in a broad and thorough, rather than a fractional, mental development on the part of the members of the dental profession, so that as a body it could bear a favorable comparison with other liberal professions. To this end, a thorough academic and collegiate education has been insisted upon for those who desire to *enter* the ranks of the profession, and also the passage of laws making such education not a matter of choice, but of *compulsion* on the part of dental students before they can engage in practice. All efforts at reform that stop short of this will prove futile, and the laws framed for the punishment of charlatans will be of no avail so long as the road by which quacks can enter the profession is freely open. Prevention is always better than cure, and in this matter *thorough education* is the only reliable remedy both as a preventive and a cure.

Whilst advocating an intimate acquaintance with the sciences and general literature, the importance of original investigations, particularly in the direction of dental histology, has been a frequent subject of commendation; and associated effort as a constant incentive toward self-improvement has been a never-failing theme. The views advanced and measures advocated in other directions from time to time, have been offered for what they were worth, in no spirit of dogmatism, but as my independent convictions, consulting more what I believed to be the best interests of the profession than what might prove to be popular.

How far the earnest desire to be useful to my fellow-practitioners has been successful, and what influence the effort to be so has had upon the profession, others must decide. The kind words of acknowledgment, however, contained in letters from professional brethren residing in different portions of the United States and foreign lands, give me the assurance that at least with them these efforts have not been without fruit. To these friends my thanks are due for their words of encouragement, stimulating as they did to renewed exertion, and it is my earnest wish that the intimate relations of friendship which, in many instances, have originated in this way, may continue as long as life lasts.

Associated with the DENTAL COSMOS in its origin, and identified with it for so many years, it is but natural that I should feel a warm interest in its success, and desire that its record in the future, as an exponent of the interests and aspirations of the profession, should be equal if not superior to the past. That such will be the constant aim of the publisher the profession may feel well assured.

J. H. McQ.

## HINTS AND QUERIES.

THE *British Journal of Dental Science* claims great advantages from a department of the magazine devoted "To Correspondents" and "Answers to Correspondents." It says: "The plan of placing the correspondence on general subjects in small type, at the end of each number, seems to have encouraged many to an expression of opinions, in a familiar way, which they would not feel inclined to have clothed with all the dignity of large type under the form of an article, and in our little corner of Notes and Queries many a valuable scientific hint has found shelter, which, in some instances, has given rise to more elaborate articles."

We have no doubt that many are deterred from contributing useful scraps of information because they are deemed too trivial for an article, and for this reason are lost to the profession. Others desiring the very information thus withheld, hesitate to ask enlightenment through fear of exposing their ignorance, and thus remain in darkness. "In the ordinary branches of human knowledge or inquiry," says Froude, "the judicious *questioning* of received opinions has been regarded as the sign of scientific vitality, the principle of scientific advancement, the very source and root of healthy progress and growth."

Recognizing this as a concise statement of a valuable means of development in every department of life, and regarding it as applying with special force to all scientific or professional pursuits, we have, for the convenience of correspondents, and in the hope of eliciting instructive suggestions, and queries which shall lead to the discussion of useful topics, and to replies benefiting others beside the querist, established a like department, and invite suggestions, fragments of experience, etc. on *practical* subjects connected with dental practice, and carefully considered questions as to the causes of disease, treatment of abnormal conditions, rationale of treatment, the restoration or substitution of lost parts, special modes of operating, instruments and appliances used, reasons therefor, etc. etc.

We should be pleased to devote a portion of our pages each month to these "Hints and Queries."

We have no doubt that many of the profession will take pleasure in replying to all sensible questions, and thus much valuable information be elicited. The co-operation of the entire profession is earnestly requested.

"Workers" and "Anxious Inquirers," please take notice.

## CHICAGO RELIEF FUND.

A MEETING of the dentists, sufferers by the late fire, was called by Dr. G. H. Cushing at his office, Wednesday, Dec. 20th, to advise as to the best means of disbursing the fund donated.

Dr. W. W. Allport was called to the chair, and Dr. E. D. Swain was appointed Secretary. A list of those burned out was furnished the meeting by Mr. S. R. Bingham, numbering sixty-seven; sixteen of those present, however, stated that they were not needy, and made no claim to any portion of the fund. A general desire was expressed that it should be divided among those actually suffering.

A committee of three was appointed to investigate the cases of those most needy, and to consult with Dr. Cushing, the custodian of the fund, and disburse as their judgment might dictate.

*Committee.*—Drs. Honsinger, Haskell, and Sherwood.

The Secretary was instructed to report to Philadelphia the action of this meeting. Also the acceptance of, and hearty thanks for, the donation. Also, that the result of the committee's investigations, and the disposition made of the fund, be posted in the dental depot of S. S. White, for the benefit of the profession in Chicago. *

FROM a private letter received by Dr. McQuillen from Dr. W. C. Horne, dated at Georgetown, Demerara, South America, we are permitted to make the following extract:

"At this point we have the following combination of races:

"*Europeans*—English, Scotch, Germans, Madeirans of Portuguese origin.

"*Descendants of Europeans*—Born in the tropics.

"*Asiatics*—Coolies, from India; Chinese.

"*Africans*—Pur et simple.

"*Mulattoes*, and all shades of intermixture of Africans with Europeans.

"*South American Indians*—Bearing in mind what has been so often reiterated, that Americans have poorer teeth than other races, and that the less civilized races have better teeth than the more refined; also that the characteristics of the teeth are due to the character of the food (to the degree that the races living upon the simplest diet have the best teeth), I submit to your notice the following, as the results of personal examination and inquiry, for the short time (five months) that I have been here.

"Of the Europeans, I must say that they are far less careful of their teeth than the class of Americans I have been accustomed to see. And if their teeth are naturally better, they suffer much more from neglect. (*Sotto voce:* I don't believe they are better.)

"The negroes and mulattoes have well-formed teeth, very strongly rooted. A few of them (comparatively speaking) take care of their teeth, keeping them white and really clean. But with the majority, the teeth which appear white by contrast, especially among the negroes, do not on close examination prove to be in good keeping. The molars and bicuspids seem to fall a prey to decay by or before middle age. Of the coolies and Chinese I cannot speak from knowledge, my observation being confined to a very few cases; but I learn at the hospital and from the plantation dispensary that the coolies lose a great many teeth from the loosening effects of tartar, and that the Chinese have better teeth than the coolies or negroes."

# BIBLIOGRAPHICAL.

Transactions of the Odontological Society of Great Britain. Vol. III., Nos. 6, 7, and 8. Printed and published for the Society.

This important association finds pertinent and valuable material enough in its discussions and in the papers read at its meetings to make a monthly publication full of interest to the dentist.

Number 6 contains five large lithograph plates, illustrating about two hundred and fifty rare specimens of deformed and diseased human teeth, from the collections of Messrs. Cattlin, Cartwright, and Tomes.

The leading papers in the numbers before us are:

"On Some of the Difficulties and Accidents which happen in the Practice of Dental Surgery." By Mr. W. A. N. Cattlin, F.R.C.S.

"Notes on the First or Milk Dentition of the Mammalia." By William Henry Flower, F.R.S.

"On the Development of the Enamel in the Teeth of Mammals, as illustrated by the various stages of growth demonstrable in the Evolution of the Fourth Molar of a Young Elephant, *Elephas Indicus*, and of the Incisor Teeth in the Fœtal Calf, *Bostourus*." By Professor Rolleston.

These articles and the accompanying discussions are valuable contributions to the literature of the profession. The illustrations are well executed, and the paper and typography in keeping with the literary and scientific standard of the society.

# PUBLISHER'S NOTICE.

## THE NEW VOLUME.

THE present number introduces the Fourteenth Volume of the DENTAL COSMOS. Succeeding numbers will be issued on the first of each month during the year. Drs. McQuillen and Ziegler having retired from its editorial supervision, this will in the future be *impersonal.*

The Publisher earnestly solicits a continuance of the favors of the patrons of the magazine, both by subscription and by contributions to its pages, and also invites those of the profession who have not heretofore subscribed for it to send in their remittance for a single volume, confident that it will be found amply worth its cost to any one engaged in the practice of dentistry.

It is our intent and earnest desire to make the DENTAL COSMOS a practical exponent of the science and art of dentistry,—to furnish fresh and varied matter for its readers, and, through original papers, reports of societies, selections, translations, and abridgments, to supply all that the practical progress of the medical and dental professions and the arts and sciences can be made to afford. Dentistry is advancing with such wonderful rapidity; improved appliances, instruments and modes of practice are so constantly developing; new and useful views are being presented so frequently, that the wonder is that any dentist can hope to maintain his position as an intelligent practitioner who does not subscribe for and read at least one dental journal.

We shall as heretofore adhere to the system of cash payments in advance, and request those who contemplate subscribing to do so promptly, in order that we may determine the number of copies to print.

SAMUEL S. WHITE.

# PERISCOPE.

## SELECTIONS AND ABSTRACTS FROM DENTAL AND MEDICAL JOURNALS.

Theory of Caries.—The secretions of the gums, and the mucous membrane of lips and cheeks, and remnants of food, may act as vehicles to the action of the acids; a certain period of time is essential, and this is less when the local conditions are more favorable to the retention of this acid vehicle. Hence we find the points of attack in the pits and grooves, interstices and facial walls of the teeth.

If we take equivalent acid vehicles, we find that the effect in different classes of teeth of the same individual and in different individuals differs.

Frequence of caries declines:—(*a*) When the acid becomes neutralized in its action; for instance, in the case of the lower incisors, which are almost constantly bathed in the saliva, and when salivary calculus is deposited freely. The deposition of this probably excludes the carious process from the spot concerned, but does not prevent the advance of chronic caries upon the one side, while upon the other the deposition of tartar advances.

(*b*) When the position of the teeth has been regulated in such a manner that their proximal surfaces are normal.

(*c*) When the teeth are thoroughly taken care of and protected against the influences of injurious forces.

(*d*) When the structure of the tooth is solid and has a normal smoothness of its surface.

(*e*) When the structure of the whole dentures and the mucous membrane of the mouth, together with the glands, is a regular one in proportion to the influences of race and hereditary transmission.

The last-named point gives the main reason for the frequency of caries in general, and stands in close relation to the structures of the whole organism. The quality of the food is only of secondary importance.

The structure of the individual tooth has an essential influence upon the progress of caries, and teeth may be grouped according to their capacity to resist. We still lack a method of investigation by which to determine more definitely the individual degree of hardness of enamel and dentine, the knowledge of which is of importance in treatment and prognosis. Alphous, in Cracow, has divided the teeth into six classes in regard to treatment of caries by file or filling.

Heider expressed himself upon this point in conversation with me, as follows: When we consider the predisposing causes in the structure of the teeth which are attacked by caries, we will find bluish or grayish white teeth with dull enamel very frequently simultaneously attacked by acute caries; upon the contrary, in yellowish-white teeth with smooth, glossy enamel, generally only chronic caries, and in isolated cases. The first-named class of teeth is supplied with less solid enamel and with less compact dentine, which is to be observed to a certainty under the file or graver. There are teeth which can be worked upon, even with inferior files, and which leave upon the file a great mass of white smeary triturated dentine; when, upon the contrary, the second class of teeth oppose great resistance to the file, and even the best of files only take a comparatively small hold upon them, and only a small mass of white powdered dentine is left upon the file. There are then two qualities of enamel and dentine, the graduations of which limit the different relations of the teeth to caries.

If what Gladstone cites in his lectures from Lasseigne be true, that the molars contain more mineral substance than the incisors, and that when the teeth grow older they distinguish themselves mainly by the great decrease in carbonate in comparison to the phosphate of lime, several points as to the course of caries according to class of teeth and age would have been offered.

From all that has been said we come to the conclusion that dental caries is a process having its origin in the abnormal secretions of the gums, and next in the remaining parts of the mucous membrane of the mouth and the salivary glands, and advances from favorable points of attack of the external surface in the direction of the pulp cavity. Through the decomposition of the secretions, acids are formed which extract the lime-salts of the hard-tooth substances and induce a disintegration of the tissues in the attacked region, in which no inflammatory secretion does occur. The process of decomposition is essentially promoted by the accumulations of the secretion and remnants of food, and under this condition the leptothrix buccalis enters luxuriantly into the diseased dentine. The exclusion of an acid in the formation of extremely chronic caries (sicca, carbonacæ aut.) is not scientifically established.—*Translation from the German, by Dr. C. R. E. Koch, in Missouri Dental Journal.*

Arterial Hemorrhage following Puncture of the Gum.—Mr. R. came to my office to-day for some filling. He is a gentleman of thirty years of age, and of sanguine temperament and robust health. After the filling was completed, he asked my attention to a soreness of the gum between the right central incisor and cuspid of the upper jaw. The lateral had been removed a few years before, on account of an abscess at the root, as the dentist had told him, and the gums had been more or less sensitive and swelled ever since.

The absorption of the alveolus was perfect; but the margins of the gums in the locality was tumefied, extending more or less about the two adjoining teeth. All the mouth, in every other respect, was entirely healthy, the gums being firm, and all the teeth free from calculus. Without a moment's hesitation, I took up a pointed bistoury, and made one puncture in the gum, near the incisor, when I was surprised to see jets of pure arterial blood thrown out persistently, and in perfect synchronism with the rhythm of the heart. The jets were thrown fully an inch forward, and were so persistent that at least thirty minutes were employed to suppress the hemorrhage, which at last was accomplished by compression. The stream of blood was about equal to a number fifty cotton thread. A curious feature of the case was, that the artery came down from the palatine arch, which I found by compression on the inside, where the pulsations were quite strong. Nearly a pint of blood was lost before I succeeded in arresting its flow. There had been no unusual bleeding when the tooth was extracted.—*H. Scott, in Dental Register.*

Caustic Agents in Alveolar Abscess.—There is another idea in this connection: If the use of creasote and other caustic and irritating agents, or what would be *considered a judicious use*, would constitute a danger by its occasionally finding its way into the antrum, and producing inflammation of the lining membrane, then this danger would arise in the treatment of alveolar abscess in connection with the bicuspids and molars, if their roots pierced the floor of that cavity, or the destruction of bone was so extensive as to permit the entrance into it of the agent employed for the cure of the abscess. Whether it would or would not, it affords a hint for the exercise of care in the treatment of these teeth, under such conditions.—*H. L. Sage, in Dental Register.*

Alveolar Abscesses Opening Externally, or Threatening to do so.—This result it is very important to prevent, if possible, as the resulting scar is a serious disfiguration, particularly in the case of a female. It is generally produced by poultices, or by lancing by ignorant dental or medical practitioners. In case the skin is not already broken, no effort should be spared to prevent the external discharge. We should consider first the advisability of attempting to save the tooth. If in the upper jaw, and valuable, the attempt may be made, but in the lower jaw, gravitation and tension are against us, and this is an argument for extraction. If we decide to retain the tooth, the pulp cavity should be cleansed; then the lancet should be freely used from the *inside.* Evacuate the pus, if possible. Apply sedative and astringent applications externally, tannin, vinegar, laudanum, or arnica and water. Cold applications may also be found useful. It may be advisable to use a compress and bandage, to prevent the external breaking No dentist should ever put a lancet into the cheek under any circumstances.

In case the external discharge has already taken place, we should consider, first, the sex of the patient, and second, the situation of the fistula; our object should be to heal the orifice without the disfiguration of a scar. If the patient is a male, the scar will probably be hidden by the whiskers, or it may in either sex be so located as to be out of sight beneath the chin, in either of which cases the tooth may at once be extracted. Should it be found difficult to decide upon the tooth giving rise to the discharge, a silver or platinum wire may be passed along the fistula till it strikes against the root of the tooth. But if the opening is in sight, especially in the case of a female, the tooth should not be at once extracted, as great depression of tissue will result in cicatrization. An artificial fistula should be made from the inside with the lancet, and the original opening healed by granulation, after which the tooth may be extracted.—*Dr. C. Stoddard Smith, in American Journal of Dental Science.*

Uses of the Uvula.—1. It acts as a sentinel to the fauces in exciting the act of deglutition when anything has to be swallowed. 2. It compresses the soft palate and holds its posterior free border firmly against the wall of the pharynx in deglutition, so that nothing can pass upwards. 3. It modifies speech in the production of loud declamation and the guttural forms of language by lessening the pharyngo-nasal passage when it acts as an elevator. 4. Its elevating power is increased to the most extreme degree in the highest ranges of the singing voice, and is very moderately exerted in the lower ranges. 5. Therefore, in its uses, deglutition and vocalization are the functions that are intimately associated with the uvula, and both become impaired more or less if it is destroyed, wholly removed, or seriously injured.—*Sir Duncan Gibb, in British Journal of Dental Science.*

Singular Location of Dental Caries.—Mrs. M., the wife of a clergyman, called July 22d, 1871, for advice with reference to the left superior central incisor, which had been abscessed for eight years, but within four weeks the parts around had assumed an acute form of inflammation, rendering them very sensitive, and the tooth exceedingly loose. An examination failed to reveal the cause, as the tooth was, apparently, perfectly free from caries and very dense in structure; neither could any cause of death be ascertained from the history of the case. At a subsequent examination, after some treatment, a very careful and thorough exploration was made with an excavator, and a cavity discovered on the lingual portion of the root, under the gum, about midway of the distance from the neck of the tooth to the apex of the root. It was completely hidden from view, and the decay had progressed to such an extent that the root was very nearly severed. May not the location of a cavity three lines or more above the margin of the gum, on the lingual surface of the root of a central incisor, be cited as a rare case?—*H. L. Sage, in Dental Register.*

On the Use of Tin Foil as a Filling.—Let it be understood that the advocacy of tin is not as against gold, but that it is believed in some cases to be the best among the base materials used for fillings.

In the first place, then, in all cases where the walls of a cavity are continuous, that is to say, where there are four walls and not merely three to a cavity, tin can be placed in it in from one-half to one-fifth of the time that is required for gold.

Secondly. When it is in and thoroughly compacted, it is probably more durable than any other base material in all unexposed cavities, because, being soft, it is more readily adapted to the form and the walls of the cavity, and it is not, like silver or its amalgams, susceptible to the action of sulphuretted hydrogen which is so constantly in the mouth; and, lastly, in the unexposed cavities mentioned, viz., approximal, buccal, or lingual cavities, together with grinding surface cavities in teeth which have no antagonists, there is not friction enough to wear them perceptibly.

Thirdly. Tin is a poor conductor of caloric, this quality being a great advantage in cases of sensitive dentine or nearly exposed pulps, quite protecting them from the painful effects of thermal changes until a deposit of secondary dentine can be thrown out.

Lastly, and I make the statement on the authority of certain professionals whom I have consulted, tin has a stronger affinity for several of the acids most frequently found in the mouth than the tooth structure has. Among these acids may be mentioned acetic, citric, tartaric, malic, lactic, and nitric. At first this might seem to militate against this material, until it is remembered that it is better that the filling should waste than that the tooth should; yet, after the oxidation of the surface, experience demonstrates the extreme durability of tin fillings, they being often found from twenty to thirty years after their insertion still doing good service, and one case was recently presented in New York in which a tin filling had been in the tooth sixty years and was still good.

Those of us who have been accustomed to use tin for many years past, have often noticed its kindly influence upon frail and sensitive teeth, and its seemingly perfect protection of many cavities where nothing else seemed to answer, no matter how perfectly the operations were performed; for instance, in the teeth of children from six to sixteen years of age, at which period of life it is very difficult to insert perfect gold fillings, and very difficult to insure cleanliness in the mouth, even could such fillings be properly placed. Again, in the mouths of patients with a strongly marked acid diathesis, where almost the whole tooth seems to be superficially corroded, cavities forming at the sulci, and at the margins of the gums grooves more or less deep and exquisitely sensitive.

In such cases as these tin seems to be more satisfactory than any other material, its softness and non-conducting properties being both extremely desirable, while its affinity for the acids above mentioned causes it to gradually waste away in the centre; but the outer edges seem to remain and protect the margins of the cavity quite well. Whether the question of galvanic action is also to be brought up here, those better versed in that department than I, may answer.

In closing, I will instance one bit of personal experience. A gold filling in my own mouth became defective from the progress of decay beneath the gum. I had it removed, the cavity excavated and filled, for lack of time to fill permanently, with oxychloride of zinc; the pain was excessive, and after a few days I had it removed and gutta-percha in the shape of Hill's stopping inserted; the pain was much less but still continuous, and enough to interfere with my work. In the afternoon of the same day I had the gutta-percha removed and tin substituted; in an hour the pain had ceased, and has not since returned, now about four months. I should state that there was no exposure of the pulp, but only sensitive dentine and cementum in the case.—*Dr. E. A. Bogue, in British Journal of Dental Science.*

An Experience with the Mallet.—Although the discussion of the mallet question is not as lively at present as a year ago, there can be no doubt that many remain to be converted to a correct practice in its use.

Having been so much benefited by the change to the heavy lead mallet, I am moved to suggest an idea in regard to the stroke, which I regard as next in importance to weight and non-elasticity. In fact, as being in a great measure necessary to get the full benefit of the increased weight.

A great many, in using the heavy lead mallet, strike a quick, short blow. This, experience has proved to me, destroys, in a great degree, the value of this, the best of all the mallets yet devised, and is one main reason of the controversy as to what qualities constitute the best mallet. Without detailing the experience that leads to such a conclusion, I will say that the best result that I have been able to attain to, with the mallet, was with one of lead, weighing nine ounces. Used with a slow stroke, swinging the mallet back and forth, a distance of about three inches, hitting square on the end of the plugger.—*W. E. Driscoll, in Mo. Dental Journal.*

Dentition.—Every student, in studying the phenomena of dentition, must necessarily have been impressed with the difference in the views expressed by observers in this direction of physiology,—no two agreeing fully in what they see and infer. Dr. J. E. Garretson, in his treatise on "Diseases and Surgery of the Mouth, Jaws, and Associate Parts," gives a description of the processes involved which commends itself as simple and reasonable, and we make the following abstract therefrom for the benefit of those who may not possess the work :

"At a certain period of fœtal life a groove is observed, the progressive development of which proves it to be the primitive dental groove. This groove is lined by a delicate membrane, continuous with the mucous membrane, and perhaps a part of it—modified, but still a part of it, just as the conjunctival cells, which pass over the cornea, are really part and parcel of the common ocular conjunctiva. This membrane, at points corresponding with the position of future teeth, is elevated into papillæ or little hills.

"A section through the membrane, over any of the bulbs, exposes a papilla. This papilla or body, closely examined, is found to be made up of a congeries of granular nuclei, dispersed irregularly through a firm homogeneous blastema. This papilla is the rudiment of the future tooth, as observation of its development proves. It is not inclosed in a cell wall or membrane of its own, but is a kind of hyaloid structure or substance. The papilla, thus understood, is seen to lie beneath the mucous membrane; and in this membrane resides a certain amount of elasticity. As the papilla enlarges and projects itself, it becomes inclosed to all the extent possible with this mucous membrane contracted about the body so as to constitute a sac or cell wall, just precisely as the parietal peritoneum contracts about and makes a sac to the projected intestine in hernia. This sac enveloping the papilla has its continuation, as is seen, necessarily over the sides of the groove; as, then, this groove enlarges and deepens, and finally envelops the papilla, it is seen that the body or tooth germ gets a second sac. It is as though one should envelop his head in a double night-cap, and then bind over this a handkerchief,—the submucous structure of the lateral walls and operculum representing the handkerchief.

"At this period, the pulp or original papilla having attained the size of the tooth it represents, commences the process of the formation of dentine. Before the attainment to full size of the papilla, there existed between it and its sac proper a halitus or fluid. This halitus, now that the congeries of cytoblasts or nucleated granules have obtained their full growth and secretive power, is replaced by a more highly endowed secretion, the work of these matured cells. This secretion, deposited against the inner sac, or between it and the pulp, contains the elements of the dentinal structure,—is, indeed, the dentine, and deposits layers after layers, supported by and moulded into form by the sac.

"As this deposit intrudes on the pulp, so this body contracts within itself, until, finally, by some law of nature, it stops at that certain point which maintains within the tooth a canal or cavity, and a vascular and nervous pulp to occupy it,—this pulp being the contracted original papilla; the vessels of this papilla being vessels entirely analogous to any one of the ordinary papilla of touch, so supplied and so maintained.

"Why this secretion, in its organization, should assume the position of the elongated tubular cells which pertains to the structure of dentine, I have of course no idea, and it is quite enough for our purpose to say that it is a law of life perhaps never to be comprehended this side of eternity, and the discovery of which would, at any rate, have but little practical signification to us.

"The formation of the dentine completed, the covering of it with enamel begins, or rather this deposit is, to a degree, coincident with the dentinal formation. Secreted by the same pulp which formed the dentine, the same secretion, some portion of it finds its way into and through the primary sac.

"As it passes through this sac it is modified, receives new elements, perhaps, which, as it is received into the second space, or the space between the first and second caps, and its calcification commences, impresses upon it the arrangement of its particles after the hexagonal order of the enamel. Between the enamel thus formed and the dentine exists the primary sac; simply the originally modified mucous membrane, which we first saw as overlying the papilla. This membrane continues its existence between these two hard bodies, and receives and modifies, for the support of the enamel, the liquor sanguinis sucked out from the dentinal tubules and intertubular structure. It may be called the enamel membrane. It has, of course, been much modified, and it is from it that we receive the impressions of pain when it is exposed by a break in the continuity of enamel.

"The growth of the root of the tooth, as its dentine is concerned, has precisely the history of the body. It is associated with the pyramidal elongation of the papilla or pulp, which, pushing upward the crown, elongates upon itself the enamel membrane. This elongation, with a greater vascularity and vitality assumed by the membrane as it approaches the basement vessels, modifies again the result obtained by the secretion passing through it from the dentinal pulp, the result being a nearer approach to true bone in the production of cementum. The periodonteum is simply the modified external sac, lost, of course, above the neck as the tooth has emerged through it."

NEURALGIA AND THE DISEASES THAT RESEMBLE IT.—Rather more than three years ago, Dr. Anstie contributed to Reynolds's "System of Medicine" an article on "Neuralgia," in which, for the first time, at least in this country, a distinct and independent position was claimed for that disease. Previously, neuralgia, definite enough to the patient, had a somewhat vague significance for the profession, by the majority of whom it was regarded as a mere offshoot of the gouty or rheumatic diathesis, or even as a casual symptom of other and incongruous diseases. Its diagnosis was difficult from its many counterfeits; and patients continued to be treated for neuralgia when myalgia, or spinal irritation, or hypochondriasis, or locomotor ataxy, or some one of at least seven other disorders, was the real cause of suffering, and should have been the real object of the physician's care. To these so-called spurious neuralgias Dr Anstie has, accordingly, given a separate classification and a distinctive character; and the part of the present volume in which this is done is a valuable contribution to scientific medicine.

"Pain" in general is the subject of the opening chapter, and the conclusions regarding it to which Dr. Anstie comes are that it involves a true lowering of function, and not, as hitherto maintained, a genuine hyperæsthesia; that it springs from a perturbation of nerve-force, due to dynamic disturbance either within or without the nervous system; and finally, that, in proportion to the physical imperfection of the nervous tissue is the susceptibility to this perturbation determined, until the imperfection goes so far as to arrest all nervous communications, and becomes, in fact, paralysis. The ground being thus cleared, Dr. Anstie enters upon a very careful clinical history of neuralgia, which he defines as a disease of the nervous system manifesting itself by pains, which, in the great majority of cases are unilateral, and appear to follow accurately the course of particular nerves, and ramify sometimes into a few, sometimes into all the terminal branches of these nerves. This chapter, however, with all its merits of method, acuteness, and inductive force, will impress the reader less powerfully than the two succeeding ones, on the complications of neuralgia, and on the pathology and etiology of the disease. Under the wholesome stimulus of Dr. Eulenburg's criticisms of the original article in Reynolds's "System of Medicine," Dr. Anstie has subjected the positions therein propounded to a searching and exhaustive revision, and has reinforced them by a kind of investigation perhaps never before systematically carried out with regard to neuralgia.

That the neuralgic tendency is hereditary, Dr. Anstie demonstrates by a number of striking cases, in which the parent of the sufferer had also been affected by the disease, and also by a copious citation of instances in which the family history of the patient showed that, among the members of two or more generations, while one or two members had been actually neuralgic, other members had suffered from other serious neuroses, such as insanity, epilepsy, paralysis, chorea, and the proclivity to uncontrollable abuse of alcohol; and in many cases that this neurotic disposition was complicated with a tendency to phthisis. Next to the influence of neurotic inheritance, Dr. Anstie shows, and, as we think, on substantial evidence, that there is no such frequently powerful factor in the construction of the neuralgic habit as mental warp of a certain kind, the product of an unwise education. Every parent, especially among the professional or upper middle class, should be made cognizant, through his medical adviser, of the really pernicious influence exerted on the nervous system by well-meant efforts to train the emotions and aspirations of the young to a high, especially to a high religious ideal.

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Dr. Anstie is unusually successful, we think, in defining the extent to which neuralgia is influenced by vaso-motor paralysis. For example, all the congestive complications of trigeminal neuralgia he would (at least in the present state of our knowledge) explain on the basis of that paralysis, believing, as he does, that the paralysis is a direct extension of the original morbid process from the sensory root to the motor, affecting the origin of the fibres in the latter, which are destined to control the calibre of the ocular and facial vessels.—*Bibliographical notice of Dr. Anstie's new work in Lancet.*

CONSTANT GALVANIC CURRENT IN TREATMENT OF NEURALGIA.—I. The first case occurred to a well-known merchant in Manchester. He was forty years old, and came to me on the 5th of June last, with intense frontal neuralgia, which had lasted a fortnight. It was most severe in the supraorbital branches of the frontal nerve. Five minutes' gentle application of the continuous current by means of small wet sponges attached to small conical conductors sufficed to cure him of his torment on the spot, and it never returned. "I wish," he said the next day to me, "I had known you a fortnight ago. I should have had a very different Whitweek to what I have had!"

II. The second case I shall mention occurred in a young lady, a governess with a leading merchant's family in this neighborhood. She had intense neuralgia of the left side of the face, which she attributed to the partial extraction of a tooth ten days before. I applied the current as in the last case, but with slender hopes of relieving her. One application, however, completely freed her from pain for a fortnight; and then she returned with it again, when a similar application effectually removed it, and there has been no return.

III. My third case occurred on the 4th of this present October, to a valued female servant of an old patient of mine. She was a girl of about twenty-four years of age, and had been suffering from facial neuralgia of both sides for three months. For two nights previously to coming to me, she had been compelled to get up from bed and come down-stairs and spend the night awake, and in great agony. Five minutes' application cured one side of the face, and a second five minutes' application cured the other, and then, to my surprise, "tired Nature's sweet restorer" overwhelmed the poor girl, and she fell fast asleep in her chair at my house. And here, again, there has been not the slightest attempt at return of pain.

These three cases have been selected from the records of my practice in the use of electrics during the last two years in the cure of disease to illustrate the truly marvelous power which the constant galvanic current has over pain. The battery used in all three was Weiss's, sometimes known as Foveaux's. I used about eight cells of this splendid battery, with very small sponges (about as large as would fill the end of a thimble) soaked in warm water, and fixed, as I have just said, to those small conical electrodes which are used for the localization of the current in paralysis of the interossei and lumbricales muscles. I applied them to the part where the pain was, keeping them about one inch apart from each other. I moved them about, but did not *remove* them, or either of them, from the skin for about two minutes. I then rested for one minute, and applied them again for two minutes more. If the pain had not been removed I should have gone on for another five minutes.. But as soon as the pain ceases in a case of neuralgia I make it a rule immediately to discontinue the application. In each of these cases I directed the patient to come daily for a repetition of the operation. But, happily, there was no need for this.—*Joseph Stead, M.R.C.S.E., Medical Press and Circular.*

NEURALGIA TREATED BY THE CONSTANT CURRENT.—Dr. Buzzard and Dr. Anstie reported cases to the Clinical Society in which this mode of treatment proved very effective. In Dr. Buzzard's case, a woman, aged sixty-five, had suffered for three months from paroxysms of agonizing pain in the neck and right arm, which attacked her several times every hour, night and day, deprived her of rest, and rendered her arm useless The neuralgia had followed seizures which sufficiently indicated its central origin, and this, coupled with the age of the patient and the degeneration of the tissues, rendered its cure in the highest degree improbable. Applications of a sedative character had been useless in relieving her suffering. A constant current derived from ten cells (increased afterward to fifteen cells) of a Weiss battery was applied from time to time, between the cervical vertebræ and the hand, with the effect of producing remarkable relief to her pain, insomuch that she at one time thought herself cured. Under the influence of this treatment the patient was enabled to sew, and to cut her food with her right hand, which had previously been so helpless that she was forced to lift it with the other. With the view of testing the effects of the application, it had been omitted on several occasions, and other remedies, as blisters, sedatives, and tonics, had been employed; but these failed in preventing the paroxysms of pain. Summing up the results of treatment, Dr. Buzzard said that out of sixteen applications of the constant current, ten had been followed by very great and well-marked relief, two by moderate relief, and four by very slight relief. Dr. Buzzard brought the case forward, not as one of cure of neuralgia, but as a good example of the effects of the constant current in relieving pain; and he drew attention to the process because it was as yet very little employed for this purpose in this country, although, as was well known, its efficacy had been perfectly recognized and insisted upon abroad for many years past.

"Dr. Anstie referred at the same meeting to two cases—one of severe neuralgia in the right cervico-brachialis, in a married woman aged forty-eight; the other of a double cervico-occipital neuralgia, in an unmarried needle-woman aged thirty. In the former case a cure was effected; in the latter, not. The constant current was employed, with the strength of ten cells, afterward increased to fifteen; the positive pole in the first case being applied alternately on the various foci of pain, the negative pole being applied by the right side of the three lower cervical vertebræ. The pain was at once diminished, and ceased altogether at the end of thirteen days; and a secondary anæsthesia of the skin, with secondary paralysis of the deltoid and trapezius, were removed at the end of twenty-four days' treatment. The cure was found persistent six weeks later. Dr. Anstie remarked that the effect of the constant current in neuralgia was remarkable, but that there were as yet some unexplained anomalies in its action. In the large majority of cases it acted as a palliative most strikingly. In a not inconsiderable number of cases it appeared to cure the disease absolutely; in a few examples it failed to produce any good effects. As a general rule, it was far less effective in the neuralgias of old persons with degenerated tissues than in younger subjects; but occasionally even a young person, like the second of his cases, fails to derive benefit from it.—*Lancet* and *New Remedies*.

ON ETHER AND CHLOROFORM AS ANÆSTHETICS.—Mr. J. Warrington Haward communicated a paper, which commenced by stating that, it having been suggested to the author that the statements of Dr. Bigelow and other American surgeons showed that ether as an anæsthetic had been to our detriment neglected, he had during the past year practically investigated the subject, and had arrived at the conclusion that ether was, for several reasons, to be preferred to chloroform. Of these reasons, the strongest was the greater safety of ether, for by using it the chief, and in skilled hands probably the only, cause of fatal cases of chloroform inhalation was excluded,—*i. e.* paralysis of the heart; ether being a stimulant to the heart's action, and uniformly improving the pulse. The second was that ether, from its stimulant quality, was antagonistic to the effects of the shock of an operation, which the author maintained, and quoted cases to show, was not abolished by rendering the patient insensible. A third was the greater liability of chloroform than ether to produce after-sickness. The principles and mode of administering ether were then described, and it was shown that if these were attended to, the production of anæsthesia by ether was as easy and certain as by chloroform, and required but little more expenditure of time or the drug. The only cases to which ether was not so applicable were operations upon the mouth, in which an inhaler could not be used, and where it was necessary to re-administer the anæsthetic as rapidly as possible without an inhaler. There were two appendices to the paper: the first consisting of a table of fatal cases of chloroform; the second, of a table of ninety-seven cases in which the author had administered ether, including amputations, excisions, perineal section, lithotomy, lithotrity, staphyloraphy, vesico-vaginal fistulæ, ligature of piles, and other operations. Especial note was taken of the occurrence of after-sickness, and the only aproach to it was that in one case, after an operation for recto-vesical fistula, the patient vomited once, an hour after the operation.

Mr. Spencer Wells said the mixed vapors of ether and chloroform had been employed at Vienna, but it was found that the ether evaporated first, and that after it had gone the patient was drenched with the chloroform. He had long felt objections to chloroform, especially as regards the vomiting it produced. This was particularly objectionable in many of the operations he had to undertake, especially in the abdomen and vagina. He had tried ether on the advice of Dr. Keith, of Edinburgh, but it was so troublesome that he was glad to take to bichloride of methylene. This he thought the best anæsthetic; sickness after it was rare. Some said it was only a mixture of chloroform and hydrochloric ether; that might be so, but so long as it suited his purpose, he did not care what it was chemically. It was best given by Jünker's apparatus.

Dr. Sansom said the data available did not admit of an accurate estimate of the relative danger of chloroform and ether. He differed from the author alike in his estimate of ether and chloroform. He could not call the former safe. Relatively, chloroform was more manageable and less nauseous than ether. He considered the great danger of chloroform lay in its depressing action on the heart; but this could be avoided. It was true ether and chloroform did not go off together, but alcohol acted by restraining them both. By injecting morphia, C. Bernard found that much less chloroform was required to produce anæsthesia. It was best to give morphia subcutaneously first, and chloroform afterwards, or to administer chloroform and alcohol together, or chloroform first and ether next, as he had first proposed some time ago.

Mr. Holmes said he had tried ether some years ago. It required twice the time chloroform did to produce anæsthesia; but this was an insignificant trouble if it were safer. He tried to favor the escape of the vapor by using a hot sponge, and it blistered the face of the patient. Violent convulsive movements were also induced by it in certain patients. Its relative safety was doubtful, for the statistics were more than suspicious. It was really impossible to avoid danger in the production of anæsthesia.

Dr. Hunter said if they used other narcotics they must look to the lungs as well as to the heart. In one of these compound cases he had nearly met with a fatal result. It was best, he thought, to use morphia when the effects of the chloroform were passing away.

Mr. Clover remembered that sickness followed the use of ether when that anæsthetic was first used in this country. He had been in the habit of giving nitrous oxide first, and then ether, as the great difficulty was to get patients to inhale it freely. As to the giving of chloroform, the modes of giving it were of the utmost importance He was convinced that a mixture of four per cent of chloroform with air had a totally different effect from a mixture of six per cent.—*Proceedings Royal Med. and Chir. Soc.* and *Medical Press and Circular.*

Physiological Effects of Carbonic Oxide —I accidentally respired, some time ago, a quantity of pure carbonic oxide. The gas was contained in a quart bottle, from which I inhaled certainly less than a pint—probably a quantity not exceeding a gill—into my lungs, previously exhausted through expiration of atmospheric air. For a moment no change of mental impressions or bodily feelings was noticeable. The next, without any intermediate condition, I was struck senseless to the floor. Fortunately the bystanders rushed immediately forward, tore open my clothing, poured water upon my wrists and head, and applied violent friction to my limbs. The pulse had stopped beating, or beat so feebly that in the agitation of the moment it was imperceptible; the chest had ceased to expand and contract, the complexion had assumed the livid hue of death, and the temperature of the body was rapidly falling. The operation of the carbonic oxide was so immediate as to prevent the lungs from throwing off the single charge they had received, and the shock arising from the remedies employed probably enabled them to do so. A slight nausea, which passed off in the course of a few hours, and a dullness and oppression in the crown of the head, lasting some time longer, were the only effects which remained after restoration to consciousness.—*Prof. A. R. Leeds, in Phil. Med. Times.*

Physiological Action of Hydrate of Chloral.—At the meeting of the French Academy, June 12th, M. H. Byasson announced the following conclusions, as drawn from a very extended series of experiments upon frogs, rats, dogs, and men:

1. The action of chloral-hydrate is different from that of chloroform.
2. This action is peculiar, but may perhaps be looked on as the result of the conjoined action of chloroform and formic acid.
3. The action of chloral-hydrate differs from that of trichloracetic acid, or of the trichloracetate of soda, which breaks up into chloroform and acetic acid.
4. A part of the chloroform formed by the action of alkali of the blood is eliminated by the pulmonary mucous membrane; a part of the formic acid is eliminated by the urine as formiate of soda.
5. There are three degrees of the operation of chloral on the animal. The first degree is a feebly soporific and slightly nervous sedative action.

The second degree: an intense soporific action, with diminution of sensibility; at this period there is a deep sleep, of variable duration, without apparent trouble of the principal functions of life.

The third degree: complete anæsthesia, with total loss of general sensibility and muscular power. Death almost always follows this degree of action for a plain reason: a considerable dose of chloral has been administered, and as its action is progressive, the organism cannot endure the strain until the complete transformation and elimination of the drug.—*Gazette Méd. de Paris.*

Coma resulting from Hydrate of Chloral.—Dr. Shaw (*Philadelphia Med. and Surg. Reporter*) describes the effect of a fifteen-grain dose of this substance, given to a paralytic patient for severe abdominal pain. The man soon lapsed into a deep coma, with spasmodic and occasionally suspended respiration, which continued eight hours. He ultimately recovered.—*Medical Record.*

Chloral Hydrate, Effects of, as a Hypnotic.—A correspondent of the *Druggists' Circular* gives an account of his experience in the use of chloral to secure sleep, as follows:

"I used chloral three weeks (20 grs. every night), with the effect of procuring sound sleep from 9 o'clock P.M. till 5 A.M. I had been for years unable to obtain more than two or three hours' sleep. My sleep seemed natural, and my head was clear on waking, but (1) my sight became, from the first day, weakened, so that I could scarcely stand reading more than half a dozen lines; (2) I had palpitations of the heart on the slightest exertion; (3) I lost my appetite, and (4) I looked ill, and felt generally very low."—*Detroit Review of Medicine.*

Hydrate of Chloral.—The hydrate of chloral, which in 1869 cost eighty dollars a pound, so that each sleep produced by it could be reckoned at one dollar, is now advertised on the list of a German chemical factory at about two dollars a pound. Such an enormous reduction in the price of a chemical product in so short a time has rarely occurred. Perhaps the only parallel case is metallic sodium, which, a few years ago, could not be had for two hundred dollars a pound, but can now be made for seventy-five cents. According to Dr. Richardson, the secret use of choral in England has become so great that the victims must be put in the same class as the opium-eaters. In proof of the enormous consumption, he states that, during the last year and a half, four dealers have sold forty tons, sufficient to give narcotic doses to 36,000,000 people,—in other words, every person in England could have had one good sound sleep out of the amount sold. In reference to the *maximum* dose that it would be safe to take, Dr. Richardson puts the amount at one hundred and twenty grains; he regards one hundred and eighty grains as likely to prove fatal. He also warns against the gradual increase of the dose, as its effect upon the organism is just the opposite of opium, the system, in fact, becoming more sensitive the longer it is used.—*Scientific American.*

Croton-Chloral.—I think it will be interesting to the readers of your journal to hear that Dr. Oscar Liebreich, of Berlin, to whom we owe that valuable therapeutic agent, hydrate of chloral, has lately been engaged in investigating the physiological and therapeutical properties of a new organic compound called croton-chloral, which is formed by conducting chlorine gas into allylene. A peculiar action of this new substance in animals is, that at first a high degree of anæsthesia in the head is produced, while sensibility in the other parts of the body remains intact. The second stage is, that the spinal cord loses its function, and reflex excitability is everywhere extinguished. During that stage both pulse and respiration remain unchanged. The third stage, which is induced by large doses, is characterized by paralysis of the medulla oblongata, and death. Animals may, however, be kept alive by artificial respiration, because the function of the heart is not interfered with; while the ultimate effect of hydrate of chloral is to paralyze the heart.

The first therapeutical experiments with the new compound were made in the University Clinique of Berlin. Complete anæsthesia of the fifth pair of cerebral nerves was produced in a child, reflex excitability in the other parts of the body continuing unchanged at the same time. Pulse and respiration remained exactly the same during the whole time of the narcosis. Further experiments in insane patients showed that we possess in croton-chloral a remedy by means of which the brain may be profoundly narcotized without any other functions being disturbed, while by chloral not only the brain, but the nervous system altogether, is rendered anæsthetic, and the heart's action is diminished, which must always constitute a source of danger. Croton-chloral, therefore, promises to produce all the good effects of hydrate of chloral without any drawback being attached to its judicious use. Its apparently specific effects on the fifth pair of cerebral nerves makes us indulge the hope that it may perhaps be found useful in that most intractable affection,—true tic-douloureux, or epileptiform neuralgia of the face.—*Dr. Julius Althaus, Medical Times and Gazette.*

Pure Oxygen for Inhalation.—Eliot recommends for the preparation of oxygen gas, to be used in medicine, the employment of a mixture of equal parts of peroxide of barium and peroxide of lead. By pouring dilute nitric acid upon these salts, there is a violent effervescence and a copious evolution of pure oxygen gas. For greater security, the gas may be afterwards washed in water. As very little heat is necessary, the operation can be performed in any stout bottle, thus dispensing with the usual retorts.—*Scientific American.*

McDonald's Theory of Nervous Action.—Dr. Robert McDonald has presented a new theory of nervous action to the Royal Irish Academy, this being expressed in the words of the author as follows: "I conceive that the various peripheral expansions of sensitive nerves take up undulations or vibrations, and convert them into waves, capable of being propagated along nervous tissue (neuricity, as it has been named). Thus the same nerve tubule may be able to transmit along its course vibrations differing in character, and hence give rise to different sensations; and, consequently, the same nerve tubule may, in its normal condition, transmit the wave which produces the idea of simple contact, or that which produces the idea of heat; or, again, the same nerve tubules in the optic nerve which propagate the undulations of red, may also propagate in normal vision those which excite the idea of yellow or blue, and so for other senses. I advocate this undulatory theory of sensation in preference to the theory of distinct conductors: first, because it is simple; second, because it is strongly supported by analogy when compared with wave propagations in other departments of science; third, because it appears to be in harmony with a large number of recognized physiological facts, which seem inexplicable upon the theory of distinct conductors."—*Harper's Magazine.*

Carbolic Acid as a Hæmostatic.—At a late meeting of the Atlanta Academy of Medicine (*Atlanta Med. and Surg. Journal*), Dr. J. G. Westmoreland called attention to the use of carbolic acid in the treatment of menorrhagia He had recently treated two cases, in which the hemorrhage, having continued for a week, was promptly relieved by one or two doses. He gave two grains of the acid, in half a tumbler of water, every three or four hours. His attention was first directed to the use of carbolic acid as a hæmostatic by Dr. Harden's recommending it in purpura hæmorrhagica. Dr. Westmoreland thought his success met with in these two cases, though not sufficient to substantiate the entire effectiveness of carbolic acid as a hæmostatic, marked it as worthy of further trial. Dr. Harden stated that he had used carbolic acid in hæmaturia and hemorrhage of the lungs, in two-grain doses, freely diluted, and found it a very prompt hæmostatic for any internal hemorrhage.—*Medical Cosmos.*

CALABAR BEAN IN TETANUS.—Dr. Campbell Black, of Glasgow, has treated a case of tetanus by Calabar bean, and is convinced that the physiological action of that drug places its use in tetanus beyond the pale of empiricism.—*Chicago Medical Examiner.*

STUDENTS DO NOT SLEEP ENOUGH.—Students, as a class, do not sleep enough. There is no law so fundamental and imperative on the student as the law which requires him to sleep, and no other law does he so systematically and recklessly ignore.

It is a popularly accepted fallacy that students and literary men do not require as much sleep as mechanics and laborers. Physiology shows us that, during the operation of the intellect, rapid changes of tissue take place, and that a few hours of close application to thought and study exhaust the system more than two or three times the same period devoted to manual labor. It is evident, then, in order to compensate for this greater waste of tissue, that the brain-worker will require more sleep than the muscle-worker.

In the violation of this first great hygienic commandment is found the secret of most of the special diseases to which the student is liable. To this cause can be traced the eye affections that are so common. By neglecting to obtain sufficient rest, the system becomes relaxed and its tone lowered, thereby inviting disease, of which these organs, being especially overtaxed and weakened, are the first to become sensible.

Anything, therefore, which is intended to increase our facilities for sleeping, is of the highest importance and interest.—*The Williams Vidette.*

SUNSHINE AND SLEEP.—Sleepless people—and there are many in America—should court the sun. The very worst soporific is laudanum, and the very best, sunshine. Therefore, it is very plain that poor sleepers should pass as many hours as possible in sunshine, and as few as possible in the shade. Many women are martyrs, and they do not know it. They shut the sunshine out of their houses and hearts, they wear veils, they carry parasols, they do all possible to keep off the subtlest and yet most potent influence which is intended to give them strength and beauty and cheerfulness. Is it not time to change this, and so get color and roses in our pale cheeks, strength in our weak backs, and courage in our timid souls?—*Platte Journal.*

IRRIGATION OF THE PHARYNX.—Dr. Guersant (*Med. News* and *Library*) alludes to those cases of very intense inflammation of the pharynx where the patients have much trouble in opening their mouths, and can scarcely separate the teeth. For these cases, and especially for children, in simple or violent inflammation of the tonsils, in abscess of these organs, in pseudo-membranous stomatitis, in diphtheritic pharyngitis, or gangrenous inflammations, or even in chronic granular or other forms of angina, much advantage is derived from irrigations of the throat. As a syringe or an irrigator must always be used, it would only be a question of having a suitable canula to depress the tongue and make the fluid spirt into the different parts of the throat. The ordinary gum canulas do not depress the tongue, and may be bitten and broken by children. In order to overcome this defect, he has had constructed an instrument which is called the canula tongue-depressor, made of bronze aluminium, that metal having the advantage of not being altered by sulphurous water, which may be used, under certain circumstances, in chronic amygdalitis for example. It has the shape of the extremity of a spoon-handle, is slightly curved, from five to six inches in length, and one-fifth of an inch thick, and hollow in its whole extent. Its extremity, which is designed to depress the tongue, has on its circumference and on its convexity a certain number of small holes, like those of a watering-pot. At the other end is a true canular extremity, which may be adjusted to the caoutchouc tube of an irrigator, or even of a syringe.

These irrigations may be repeated several times a day. Older persons easily accustom themselves to its use, and even children at last consider it an amusement. In certain forms of chronic amygdalitis, and in granular inflammation, he has obtained good results from irrigation, by the use of sulphurous waters, as practiced by Dr. Lambron, at Luchon.—*Georgia Med. Companion.*

BELLADONNA IN TONSILLITIS.—A correspondent of the *Lancet* writes, "in reference to the treatment of acute tonsillitis by belladonna, that he has been in the habit of treating this disease by the administration of two-drop doses of the tincture of belladonna every two hours, with the effect of causing a subsidence of the inflammatory phenomena in from twelve to twenty-four hours."—*Med. Cosmos.*

TREATMENT OF ENLARGED TONSILS BY INJECTION OF IODINE.—Dr. Rumbold, of St. Louis, Missouri (*Medical Archives*), has treated successfully a number of cases of enlarged tonsils, by injecting the glands, by means of a hypodermic syringe, with a solution of iodine—iodine, gr. ij ; potass. iod., scr. ij ; aquæ, oz. j. Generally, a slight inflammation followed the injection, but soon subsided. From twelve to seventeen injections—ordinarily two a week—were sufficient to reduce the gland to its normal condition. The advantage claimed for this mode of treatment was, saving the substance and function (?) of the gland.—*Cincinnati Lancet and Observer.*

GLYCERIN IN PUTRID SORE-THROAT.—I have found this an invaluable remedy in putrid sore-throat, as well as in many other affections. Not long since a case occurred in which its healing properties were fully tested. The patient, a little girl, seven years of age, had been suffering several days before I saw her, and the various remedies employed had made no impression on the disease. As it was with great difficulty and pain she swallowed, and her pulse being very weak and quick, it was important that the remedy adopted should possess healing, nourishing, and antiseptic properties ; and glycerin, possessing these properties, was administered in teaspoonful doses every six hours. The first dose caused some smarting, the second less, and before giving the third there was obvious improvement. The case was dismissed in three days.—*Dr. J. D. Palmer, in Amer. Jour. of Pharmacy.*

LEMAIRE'S CARBOLIZED TOOTH-WASH.—Take of water, 1000 parts; essence of spearmint, 50 parts; carbolic acid, 10 parts. Mix. A dessert-spoonful to a quarter tumbler of water.—*Sansom's Antiseptic System.*

FOOT AND MOUTH DISEASE IN THE HUMAN SUBJECT.—For some weeks past I have intended to send you a notice concerning the occurrence of "Foot and Mouth Disease" among my patients, but I should probably have neglected to "crown my thoughts with acts," had I not noticed in your last impression a request for such information.

Here, then, the foot and mouth disease among neat cattle has been epidemic to a very great extent during the past summer. I need say no more of it than that in this district, as elsewhere, it appears to be highly infectious, to have a distinct incubative stage, to affect the animals for two or three weeks after the appearance of the eruption, and finally to subside,—fatal terminations being rare. The milk from the sick cows, even during the incubative stage, is capable of producing a like disease in other animals which consume it,—pigs, for instance, suffering severely. It has sometimes a faint, and at other times a slightly putrid, odor, decomposes quickly, and its ill effects are not, I think, entirely removed by boiling. When the febrile symptoms are at their height, the cows often become dry.

Now, proceeding *pari passu*, both as to time and symptoms, with this epidemic, has been the disease affecting my patients, both infantile and adult, but more especially (as the great milk consumers) the former. After a few days of poorliness, hardly noted by the parents, an eruption shows itself on the lips, the lining membrane of the cheeks, and on the sides of the tongue; and generally a few yellow-headed pimples (they are not vesicles) show themselves on the hard palate. The child refuses food,—more on account of the tenderness of the mouth than from want of appetite,—becomes feverish and restless, and so remains till the subsidence of the rash, which, under favorable circumstances, takes place in the course of ten or fourteen days, leaving no further ill effects than a certain degree of debility, from which the patient quickly rallies.

The above is a description of a simple and uncomplicated case, and from such I have seen no fatal effect,—in fact, the symptoms are hardly alarming; but it is far otherwise when diarrhœa occurs as a complication, epecially when it assumes, as it frequently does, a dysenteric form, which is particularly intractable. I mention diarrhœa as a "complication" because it existed as an epidemic at the time, and I am by no means sure that it forms part and parcel of the affection under consideration, although its subjects were probably peculiarly open to its attack, and suffered more severely in proportion to the degree of debility and fever already established. One of these cases I lost,—a poor "farmed-out" child of eleven months, which, however, I am bound to add, was tended carefully and even affectionately by the she-farmer. Another case, which for a time looked badly, was that of a child about nine years old, whose lips, uvula, and tongue became densely covered with false membrane, and who obstinately refused food, both fluid and solid, for many days, although evidently suffering from both hunger and thirst. Now, I have put these cases down as "foot and mouth disease," because they were almost all distinctly traceable to the use of milk from diseased animals, but I must admit that the *foot* symptoms were in general conspicuous by their absence. In one case, however, an adult female, it was not so, for in addition to the usual mouth symptoms, the feet became hot and covered with painful tubercles, which disappeared with the attack. She also suffered sharply from diarrhœa.

The treatment of the disease was of course principally dietetic,—the substitution of good milk for bad, or the use of the condensed Swiss milk, which I find answer admirably, and to be much approved by my patients, young and old. Liebig's extract, too, did good service, and in some cases, where the exhaustion was great, a few drops of brandy added to the food produced good results. One medicine was extremely useful, and apparently extremely grateful to both young and old,—even to the child whom I mentioned as refusing all forms of food for many days,—and that was the sulphurous acid, frequently given, in doses of five to twenty minims, with a little syrup of oranges and water. No treatment seemed very effectual in controlling the dysenteric symptoms; but the administration of small doses of tinct. ferri perchlor., with spirits of chloroform every four hours, certainly did good both during their continuance and in convalescence.

In conclusion, I may note the difficulty which exists as to tracing these cases to their true cause, dealers in milk being of course unwilling to acknowledge the existence of disease among their cattle.—*T. E. Amyot, F.R.C.S., Medical Times and Gazette.*

Blennorrhœa Parotis.—Mina R., aged thirteen years, living in Wisconsin, of healthy, robust appearance, applied for assistance in January last. She stated that for the past six months she could squeeze out, every morning, a few drops of pus from inside of her right cheek. Upon examining her mouth, I could not, at first, detect anything abnormal, her teeth being perfect; but upon further inquiry, I learned that in July, 1870, she had an attack of idiopathic parotis, and so it was, the pus came from the ductus Steno. The duct seemed to be rather contracted, as I could only introduce a No. 1 dilator for the lachrymal duct. The introduction proved also very painful to her, more especially about one and a half inches posterior to orifice. I requested the parents to leave the child in town, and proceeded to inject the duct with a stimulating solution of zinc and laudanum, which I did every morning for a week, applying at the same time external counter-irritation with tinct. iod. She could plainly feel the injections, as she stated, clear to the front of her ear. The hypodermic syringe I had to deprive of its point and round it off, in order to use it. In a week's time the discharge had completely stopped, and two weeks from the day of treatment, I allowed her to return to her parents, no recurrence having since taken place.

"Having never seen a case like it before, and not knowing of any similar case referred to in my small selection of surgical works, I thought it worth while to mention the case, which I baptized as above.—*F. Lessing, M.D., Wabashaw, Minn., N. W. Med. and Surg. Journal.*

Scarcity of Remains of the Upper Jaw of Marsupials.—A large number of fossil mammals are only known from the teeth and bone of the lower jaw, these being preserved when no other trace (of the head at least) remains. This is especially the case with the small marsupial mammals, found in the mesozoic rocks of Great Britain, where, out of ten genera and twenty-five species, based upon numerous specimens, not more than half a dozen series of teeth of the upper jaw have been discovered, and no crania.—*Harper's Magazine.*

# HINTS AND QUERIES.

Josiah Bacon stated to a brother dentist at ——, the other day, that he owned the celluloid base. What are the facts?—J. B.

Let those who know, state the facts, and we will publish them.—Ed.

Will you be so kind as to inform me if the Rubber Co. are doubling the amount of their annual extortions on dentists for the year 1872; or am I an exception? Bacon has sent me his annual notice, demanding one hundred dollars, instead of fifty dollars, which I have been paying. As I can't think for a moment of settling with these extortioners at this increased rate, in justice to my family and creditors, what, in your opinion, ought I to do?—A. H. S.

I wish to inquire for information what the dentists are going to do about paying Bacon the first of January for a year's license, and what about any claim he will have on us after May. I do not know what to do about it. I will be much obliged for information.—P. C. M.

Please tell me when the term of the Goodyear patent expires, and the validity of the Cummings patent. Will it be right to pay for all the year 1872, as Goodyear's patent expires within the year?—H. M. D.

There are three dentists in this place, myself included. Last year my license was forty-five dollars, and this year they do not propose to give me a license for less than seventy-five dollars, when all that is required of the others is forty-five dollars. On what grounds do dentists propose to establish the worthlessness of the Cummings patent, or will there be nothing done in that direction?—J. M. W.

The above queries are samples of those which are received by every mail. All that we have in the way of suggestion or information upon the subject we give below.—Ed.

Worcester, Mass., *Dec.* 26, 1871.

Mr. Editor,—In reviewing a letter of mine in the December Dental Cosmos, "H. C." suggests that the facts to be met in the case are these: that this "patent is a legal one, and has been several times sustained in court." Now, this is just the point to be settled. My communication was made for the purpose of having the dentist understand that in no case, as I believe, has there ever been a decision which had anything directly to do with the Cummings patent, except by a collusive judgment, as you may call it, in which the Vulcanite Co. have gone into court with a pair of nags (by their own arrangement), one of which was sure to win. To present a case in which they had to unhitch the winning horse and drive a lame one, was my object. Such a case was the one I referred to, as Dr. T. B. Gunning held all rights and privileges under the Goodyear patent.

Such cases are not common, and if any has occurred where the Cummings patent has been tried upon its own merits alone, then I stand corrected.

Dr. G. may not choose to give his replication to the profession. Indeed, I see no reason why he should, if he prefers not to. Although I greatly regret, for one, that it cannot be widely published among the dentists at the present time.

That Cummings obtained letters patent from our government, I know; that they were genuine, I believe; but that he was entitled to such papers, or that they were legal, I do not believe.

An established principle of law makes a patent worthless, wherein the article was in use two years prior to issue. This issue, rotten as it is, has now ten years to impose upon dentists an extortion of a sum of money annually nearly equal to the average office rent of dentists through the whole country.

I offer the following facts, to which I can make oath, which have some relation to this subject. I will only give one copy of a receipt, of which I hold several, and suggest that having used rubber freely so long before Cummings's discovery took place, both myself and other dentists in this vicinity consider his discovery rather a joke.

## COPY OF A RECEIPT.

PATENT VULCANITE DENTAL AGENCY
FOR THE SALE OF
OFFICE RIGHTS, APPARATUS AND MATERIALS,
USED UNDER THE
GOODYEAR PATENTS,
FOR THE VULCANITE BASE
FOR ARTIFICIAL TEETH.

13 Tremont Street, Boston, *June* 26, 1860.

Dr. H. F. Bishop, *Worcester*,

To Wm. A. Bevin, *Dr.*
Agent.

| | |
|---|---|
| To mounting one-half set Teeth on Vulcanite Base | $4 00 |
| Finishing | 1 00 |
| Express from Worcester | 13 |
| | $5 13 |

C. O. D.

Rec'd pay't,

Wm. A. Bevin.

Cummings's first application for his patent was just four years after this (less nineteen days). And in consequencce of defect of specification, he surrendered twice, and succeeded finally the next March in getting his letters patent for precisely the thing which had been in constant and common use for the previous four or five years by the dentists.

Comment is unnecessary. "What are you going to do about it?" is the question.

H. F. Bishop.

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Auburn, N. Y., Dec. 26, 1871.

Mr. Editor,—Permit me to occupy a brief space in your pages, in addressing a word of advice to the dental profession. Our relations with the Goodyear Dental Vulcanite Company *will be quite different the coming year* from those which have existed during the past ten or twelve years. The expiration, on the sixth of May next, of the Goodyear patent, which secured to the patentee *the exclusive right to control the use of hard or vulcanized rubber for* ALL *purposes*, will release us from every liability to Bacon & Co. from and after that date, should we elect to employ rubber in the production of plates, notwithstanding the pretense that the "Cummings patent," so called, secures to the patentee a certain application of hard or vulcanized rubber. Long before the time when Cummings applied for a patent, the assignees of Nelson Goodyear sold licenses to dentists to use hard or vulcanized rubber in the production of plates, under and by virtue of their patent. Common sense, then, suggests to every dentist in the land that *another patent for the same thing* could not *legally* have been granted to Cummings.

I now come to the "word of advice" referred to above, to wit: *refuse to accept a license from Bacon for the year* 1872, or for any part of the year. The conditions of every such license obligate the licensee to acknowledge *the validity* of the Cummings patent, and bind him to abide by the agreement he enters into with Bacon contained in such license instrument, whereby he contracts not to controvert the validity of Cummings's patent, nor to resist the claims of Bacon under it.

I cannot conceive that there is one to be found in our profession so wanting in both intelligence and self-respect as to enter into such a compact. My advice is, under no circumstances, on no conditions, at no price, is it wise or proper to accept a license for any portion of the year 1872. As a substitute for rubber, both in the production of new plates and for repairing rubber-work, celluloid is *entirely satisfactory.* It is worked so much quicker than rubber that it is as cheap a material to use; and my experience during a year's use of it convinces me that it may be put up by every dentist in the United States and made as serviceable (to the dentists). I hold myself ready to impart instructions to such of the profession as may be unacquainted with the processes of working the material successfully. Its substitution for rubber for the brief period of *four* months from January 1st, 1872, is not impracticable under any circumstances, and I trust my brethren of the profession will appreciate the propriety and the importance of taking the stand here indicated, as a primary step, leading us out of the thraldom in which Josiah has involved us by his Yankee ingenuity. It is understood to be the policy of the State and senatorial district dental societies of the State of New York to provide the ways and means for contesting the validity of the Cummings patent, and to expose the sharp practices of Josiah and his associates in their attempts to *legalize* their pauperism and saddle themselves on the dental profession for support.
G. W. TRIPP.

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DESIRING to give a reply that will not mislead those asking for information and advice, I applied to one who, by reason of his knowledge of the patents and of the proceedings under them, is quite competent to give a statement of the existing condition of the case, and an opinion as to the course of action open to dentists in the present dilemma. The following is his statement. S. S. W.

The Nelson Goodyear patent for hard rubber will expire in May, 1872. It can be extended for a further term by special act of Congress, but there is no probability that such legislation can be procured for the continuance of a patent owned by purchasing speculators---and which has paid so largely. It is safe to conclude that that will be the end of it.

The Cummings patent, which claims the present mode of making hard rubber artificial dentures, was granted June 7, 1864, for the term of seventeen years.

The specification and claims of the amended and reissued Cummings patent are such that, while it stands as a valid patent, a dentist who makes hard rubber or vulcanite work cannot evade it. He must either conceal that he does it, or procure a license from its owners, or accept the issue and fight them in the U. S. Courts.

Heretofore the suits brought against dentists infringing this patent have resulted in favor of it. Many persons attribute these results to anything but the soundness and goodness of the patent. We hear of partiality of the judges, collusive consent of the defendants, etc. Yet whatever may be the truth of these rumors, the fact is becoming apparent that by several judgements in its favor, this Cummings patent will acquire such a standing as will give its owners great facility in the courts for taking injunctions against infringers.

It is the announced rule of the Boston Dental Vulcanite Company to license dentists under both the Goodyear and Cummings patents, and in no other way.

They do not grant licenses for less than one year.

If therefore any dentist makes vulcanite during the year 1872, he must conceal it perfectly, or expect to pay Josiah Bacon's Co. the price of a license, etc. for the year.

If he vulcanizes a single case he will be liable, if it be previous to May 6, on both patents, and after that date on the Cummings patent only.

To resist the Goodyear patent at this late day would be folly.

To resist the Cummings patent is wise if it be well done. Whoever does it must calculate to do it alone, and at his own expense, or know for himself the aid which others will give him.

There is a good deal of talk and inquiry at this time, but there does not exist any organized association for general defense or to aid individual resistants.

It is possible to break the Cummings patent. It is an unsound and defective patent. To break it is quite as possible for an individual as for an association, but to do it will require the knowledge, the pluck, and the money to carry it through.

The individual dentist who knows he has not got these of himself or is not sure to get them from others, had better take a license—when compelled to do so—or let vulcanite alone.

On the whole, this last is the very best way. Pass the word around, LET VULCANITE ALONE. Do not make a bit of it this year; be ready to show and prove that you have not; use any other material known to the profession as being suitable; be firm in this course for a short time.

Cut off the resources of the Bacon party, give them no hitch for a claim or suit against you; carry out this abstinence until June next, when they will be able to attack with the Cummings patent only. Organize in the mean time a strong association, retain the counsel which defended the Wetherbee case; add to them Hon. Samuel S. Fisher, late patent commissioner, and any other eminent counsel demanded by local interests to inspire full confidence in the effort and protect individuals from malicious prosecution; make up a full, perfect case, and break up this swindle.

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## BENONI E. GARDINER'S APPEAL.

WE attended a meeting of dentists in New York on Saturday, December 23d, which was called with reference to the Benoni E. Gardiner appeal case. This case is an appeal from the decision of the U. S. District Court which reaffirms the validity of the Cummings patent, previously sustained in the famous Wetherbee case. Gardiner's appeal is taken to the Supreme Court of the U. S. for the purpose of reversing this decision. It is set down for a hearing during this present month of January, 1872.

Nothing could be more desirable than that Gardiner's case should be ably argued. The object of this meeting was stated to be for the employment of counsel of high ability to work on it to defeat the patent. Speeches were made by Dr. Dwinelle, Col. John A. Foster, Samuel J. Glassey, myself, and others, tending to explain and elucidate the case and stir up those present to action.

A committee was appointed to report at a future meeting the course of action which the profession in interest ought to adopt in order to aid effectually in this tempting opportunity to destroy forever this old man of the sea.

The committee have called an "adjourned Mass Meeting of the members of the Dental Profession of New York and Brooklyn, which will be held in the Lecture Room of the New York College of Dentistry on Wednesday, January 3d, at 7½ P.M.

"The object of this meeting is to hear the report of the committee appointed at the last meeting, and to devise means for testing the validity of the Cummings Dental Vulcanite Patent."

All new developments will be duly reported in the next number.

Up to the last moment it was hoped that a report of the proceedings made for the newspaper press would be obtained; therefore the above hasty summary is all that can be offered. S. S. W.

THE

# DENTAL COSMOS.

VOL. XIV. PHILADELPHIA, FEBRUARY, 1872. No. 2.

## ORIGINAL COMMUNICATIONS.

### ALVEOLAR ABSCESS.

BY FRANK ABBOTT, M.D.,

PROFESSOR OF OPERATIVE DENTISTRY AND ORAL SURGERY IN THE NEW YORK COLLEGE OF DENTISTRY.

Read before the Seventh and Eighth Districts Dental Society of New York State.

"ABSCESS is the most common affection to which the alveolus is subject. Its effects are always exceedingly pernicious, not only to the alveolar process, but to the gums," and often the constitutional symptoms are severe.

An abscess in this locality resembles, in some respects, abscesses located in other portions of the body, differing, however, in one very important particular, viz., that while those located in soft parts are circumscribed by tissue in a state of repair, those located in this situation are circumscribed by the alveolus and tooth; consequently, as the contained pus is limited on the one hand by the fang of the tooth, and, on the other, by the osseous process, there is no reparation of tissue going on.

*Varieties.*—The varieties of alveolar abscess may be divided primarily into true and false. The true may be subdivided into acute and chronic.

*Etiology.*—The causes of true alveolar abscess are the presence of irritating matter at the apex of the fang of a tooth. This irritating matter is dead pulp in the tooth; it may be entire, or portions left from incomplete extirpation before filling.

Death of the pulps of teeth may be produced by the irritation occasioned by the advance of caries toward the pulp-chamber, "by mechanical violence, by sudden and repeated transitions of temperature," and by constitutional syphilis. A tooth may be decayed sufficiently to expose the pulp, and the irritation produced by the septic influence of the air, and the pressure of particles of food lodging upon it, are sufficient to produce inflammation which will result in its death. Some forms of mechanical violence which may induce the death of pulps are—1st. Filling an ordinary cavity with gold at an improper time, such as during active constitutional syphilis, pregnancy, or an enfeebled state of the system from any cause. 2d. The too vigorous use of a mallet in condensing the gold. 3d. The too rapid forcing of teeth apart for the purpose of obtaining room to fill them, or from their position for the purpose of regulating. 4th. Blows upon the teeth in a lateral direction, either accidental or otherwise.

Either form, acute or chronic, of true alveolar abscess may be produced by the same causes, while the false has for its cause always a salivary calcular deposit on the fang or fangs of a tooth.

"The acute form generally occurs in persons of sound constitution; it is rapid in progress, and is easily cured." The chronic is usually found in persons suffering from scrofula or syphilis. It is slow in development, and does not readily yield to remedial measures, "sometimes resisting curative effort altogether," while the false is liable to occur in the mouths of persons who neglect to keep their teeth clear of calcular deposit.

*Symptoms.*—The symptoms of acute alveolar abscess are, first, a slight tenderness on occlusion of the teeth, or on percussion with an instrument. On inspection, a marked discoloration of the tooth is perceptible. The soreness (which is soon accompanied by pain) rapidly increases, so that in from twelve to twenty-four hours the tooth will be slightly projected, and so excessively painful to the touch that the teeth cannot be brought firmly together. These symptoms are accompanied by an increasing throbbing, diffused over the side of the head and face, and slight febrile action. About the fourth day after the original tenderness, the patient will experience rigor, loss of appetite, and excruciating pain, which pain lasts from two to four days.

During this latter period the alveolus has been undergoing perforation. When the pus has reached the soft parts, the pain materially subsides. The gums and face begin to swell, increasing rapidly.

From that time we have all the symptoms of an abscess in soft parts in general, such as fluctuation, etc. "When evacuated, the pus is found to be thin, with traces of blood coming from the centre;" and from the surface cut, or walls of the tumor, the bleeding will be quite profuse.

In the chronic variety there is, first, a slight tenderness of the tooth, which increases very slowly, and sometimes appearing to improve even. The pain experienced during perforation of the alveolus is slight, preceded by very little or no throbbing. The swelling of the gums and face occurs much slower, and to a much less extent, than in the acute; and when evacuated, the pus is thick, with very little if any traces of blood, either from the centre or walls of the tumor.

As to the ultimate point of exit of the pus after having reached the soft parts, either in the acute or chronic varieties (when allowed to take its own course), it varies very much, according to the part of the dental arch involved. This may be opposite the opening through the alveolus, or some distance anteriorly or posteriorly along the arch. If located in the upper jaw, and any except the buccal fangs of the first bicuspids and molars are involved, it may be in the roof of the mouth,—it having burrowed along between the periosteum and hard palate; when the pus discharges in the last-mentioned locality, the cause is often attributed to constitutional syphilis; from such mistakes I have seen very serious consequences result. When located in the lower jaw, the point of exit may (if the front teeth are involved) be under the chin; if the first or second molars, at, or near the angle of, the jaw; if the third molars, as low down as the side of the neck. As a rule, however, the fistulous opening is in the gums, very nearly opposite the perforation in the alveolus, whether in the upper or lower jaw.

The symptoms of the false variety are, first, a tenderness of the gum at a point opposite the upper third of the fang of a tooth; on occlusion of the teeth, or on percussion with an instrument, slight periostitis is observed. The gum swells rapidly, but to a limited extent; the substance of the gum over the point of irritation being thin, the abscess very soon points, or comes to the surface, and is evacuated. The pus is thin, resembling very much that discharged from the acute form of the true, but very slight in proportion.

*Pathology.*—Death of the pulp is due to inflammation, which of itself produces no marked symptoms (except what is generally termed toothache); but as it extends through the foramen, at the apex of the fang, the periosteum of the alveolus becomes involved in the inflammation, and tenderness of the tooth, on direct percussion, or on occlusion of the teeth, is developed. As the inflammation advances, the periosteum becomes thickened and the tooth projected. After death of the pulp, it undergoes decomposition, which decomposed substance, being of a darker color than the pulp in a living and healthy condition, and the semi-fluid contents of the tubuli of the tooth substance participating, the tooth soon presents a darkened appearance; the diseased parts being confined by unyielding tissue, the excessive pain accompanied by febrile action, and severe prostration results.

The thickened periosteum results from a state of nutritive irritability, or cell hypertrophy of the tissues of the periosteum, which rapidly passes to formative irritability, or proliferation of cells. This latter, under the continued irritation of the decomposed matter of the pulp, and the unyielding character of its surroundings, ultimately leads to exhaustive proliferation of cells, or the production of pus. This step is indicated by the occurrence of rigor. The febrile action, present from the beginning, markedly increases, and the pain becomes more intense. The walls of the alveolus, pressed upon by its abnormal and augmented contents, yield to the pressure at the least resisting point, and progressive absorption of the process occurs until perforation is effected. The pus, now escaping from its pent-up situation, is poured out into the yielding soft tissues, and the milder symptoms of a simple superficial abscess takes the place of the former severe, local, and constitutional disturbances.

The variations in the ultimate points of escape of the pus are due to the fact that pus always takes the direction offering the least resistance, and (as before stated) they are determined by the special tooth involved, and also the particular fang affected.

Both the acute and chronic forms may present the same pathological lesions, varying only in their respective rapidity of development.

In the false variety the salivary calcular deposit commences on the fang, under the free margin of the gum, extending one-half or two-thirds its length, detaching the gum from the neck of the tooth, causing death of the periosteum, absorption of the alveolus, and resulting in suppuration, the pus discharging between the neck of the tooth and the gum. As the collection increases, it irritates the overlapping portion of gum (which, in the absence of the alveolus, comes in direct contact with the rough surface of the deposit), causing suppuration in the gum substance. The point of exit of the pus is almost invariably over that of the irritation.

*Differential Diagnosis.*—With the symptoms of the three forms of alveolar abscess before us, it seems almost needless for me to say anything under this head ; but what I have termed false abscess is so often mistaken for the true, that I deem it of sufficient importance to give, at this time, some points of difference.

In the acute form of the true, it will be remembered that among the symptoms were enumerated throbbing diffused over the side of the head and face, followed by excruciating pain, lasting from two to four days, and then follows excessive swelling of the gums and face, and discoloration of the tooth. Now, none of these symptoms occur in the false, except in a greatly modified form. The point of exit of the pus being often the same, is calculated to mislead. After the inflammation and swelling have subsided, the surrounding parts present a correspondingly healthy appearance ; but, while in the true variety the gum will be found firmly attached to the neck of the tooth, in the false it will be detached, so that a probe may be introduced from three-eighths to one-half of an inch between the gum and fang of the tooth.

*Prognosis.*—In the acute form of true alveolar abscess the prognosis is generally favorable to the preservation of the tooth, with the permanent loss of nothing save the pulp,—the soft parts healing, and the opening through the alveolus closing readily if proper treatment be resorted to. In the chronic, particularly when complicated with scrofula or syphilis, it is much more unfavorable, loss of the tooth with portions of the alveolus often resulting, and sometimes several teeth with corresponding portions of alveolar process becoming involved.

In the false it is less favorable than in the acute form of the true, from the fact of its being often so difficult to remove the cause without removing the tooth itself. When this can be done, however, it is always favorable to the preservation of the tooth, and restoration of the surrounding parts to a healthy condition.

*Treatment.*—This may be divided into local and constitutional. The local consists in abortive, palliative, and curative measures. The abortive may be resorted to in the early stages of the morbid action, when the tooth is tender, projected, and discolored. It consists in opening the pulp-chamber by drilling through the crown of the tooth. This, however, must be done, at any stage; but if performed early, it will abort the external abscess.

Palliative measures consist in relieving pain, and limiting destruction of tissue. Pain may be controlled by hypodermic injection of morphia, from one-eighth to one-fourth of a grain, morning and night. Limitation of destruction of tissue may be effected by the direct application to the gum of a solution composed of Fleming's tincture of aconite root and tincture of iodine, equal parts, two or three times a day, with evacuation of the pus, as soon as fluctuation can be detected. Curative treatment is only applicable after the pus has been evacuated; it includes the removal of the source of irritation, viz., the dead pulp, and the thorough introduction of antiseptic solutions into the pulp canals and abscess.

The most reliable solutions for this purpose are permanganate of potash, grs. x to water ℥i, followed by carbolized oil, one part of carbolic acid to fifteen of olive oil, introduced in the following manner: an instrument small enough to pass readily through the entire length of the canal is employed, on which is wound a bit of cotton; this being dipped into the solution and forced into the canal, acts as a piston, and thus the abscess and fistulous opening are filled with the remedy. Where the canals are flattened so as to prevent the perfect adaptation of the piston, they may be introduced by saturating a pellet of cotton with the solution, placing it into the cavity of the tooth, then with a piece of partially-softened wax placed over the orifice of the cavity, and pressed upon the cotton; the solution contained in it is readily forced through as desired, one application often being sufficient to effect a cure.

Constitutional treatment embraces attention to the primæ viæ, allaying undue febrile action by arterial sedatives, and insuring a proper supply of nutritious food as convalescence progresses.

In syphilitic patients with chronic abscess, iodide of potassium is the sheet-anchor, in doses of v to xx grs. three times a day.

In scrofulous patients cod-liver oil, ℥ss three times a day, and syr. ferri iodide from gtt. x to ʒss three times a day, may be advantageously employed. The two may be taken together.

The treatment of false alveolar abscess consists chiefly in removing the calcular deposit, and the use of astringents on the gums. Its removal should always be accomplished by mechanical means, not by chemical action, as is the case in the use of acids, as the substance of the tooth is very seriously injured thereby.

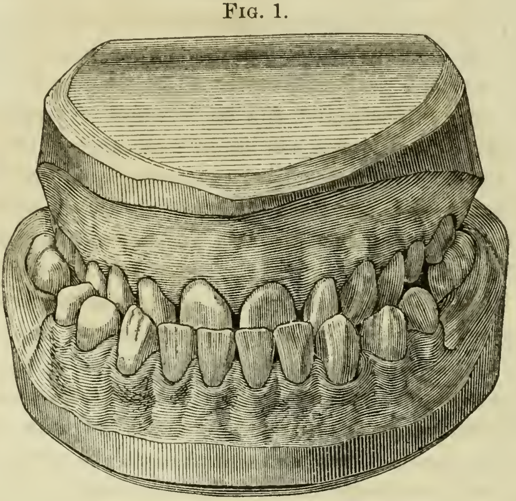
# TREATMENT OF IRREGULARITIES.

BY PROF. NORMAN W. KINGSLEY, NEW YORK.

On the 19th of January, 1871, the treatment of the following described case of irregularity was commenced:

The patient was a young lady of fourteen years of age. The occlusion of the jaws showed that the entire row of lower teeth shut outside the upper ones. This is fairly represented in the cut herewith inserted, Fig. 1.

Fig. 1.



The external features showed—1st. That the lower jaw was not too large, being neither too wide nor too long. This determination was easily arrived at by a comparison of the extreme lower part of the face with the upper part of the face and head. 2d. The same course of reasoning showed that, relatively, the upper alveolar border and row of teeth were contracted so much as to produce limited external deformity.

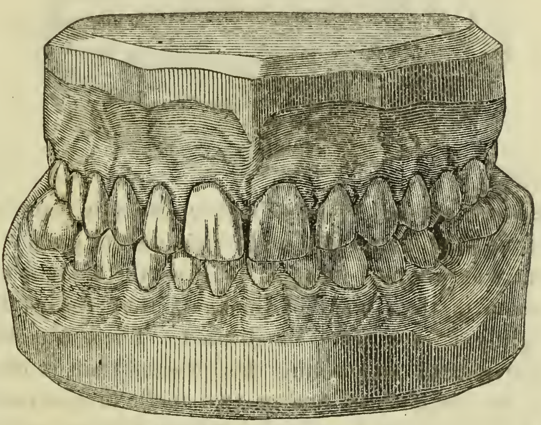
To a casual observer, the chin and lower lip were too full. To a more accurate observer, the upper lip, cheeks, and nose were depressed. I suggested that immediate attention would correct what otherwise would become an increasing deformity through life.

The casts, as represented in Fig. 1, were taken, and the first fixture applied, as before stated, January 19th. Six days afterward the incisor teeth of the upper jaw were overlapping the lower incisors.

On that same day, namely, January 25th, I gave a clinic, by previous engagement, under the auspices of the District Dental Society of New York, at Mr. White's dental depot, on the subject of "Treatment of Irregularities," and I took an impression and made a cast of this case, exhibiting it there as a part of my demonstration, to prove the rapidity with which teeth could safely be moved into certain positions.

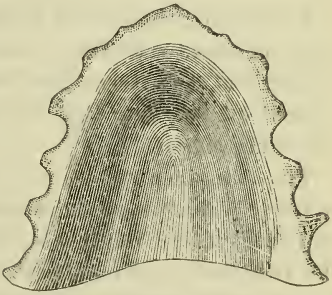
Within twenty days from the time the power was first applied to the teeth, the entire upper row was articulating outside of the lower ones, substantially as shown in Fig. 2. A retaining-plate was adapted to the upper jaw, such as is shown in Fig. 3, which was worn, with some unimportant modifications, for several months.

FIG. 2.



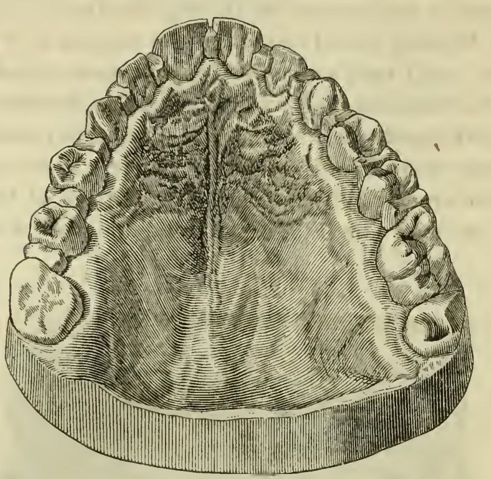
The result is a most marked change in the profile, and in the relation of the external features. The individual features being naturally well formed and symmetrical, the change in their relations produced a face of more than usual beauty.

FIG. 3.



The treatment consisted solely of wedges inserted between the teeth, as shown in Fig. 4, in conjunction with the retaining-plate, Fig. 3. Wedges were inserted between *all* the teeth, as shown in Fig. 4, and worn from the first. These wedges were of elastic rubber, and used of such thickness only as would exert a gentle pressure. The retaining-plate answered a twofold purpose: it kept the teeth from the possible contingency of any one of them moving toward the centre of the mouth; and secondly,—that which was of equal importance,—points of the retaining-plate were allowed to pass between all the teeth, which kept each wedge from slipping up into and irritating the gum.

FIG. 4.



The patient was watched daily so long as the wedges were acting. When by reason of their want of thickness they ceased to act, new ones, but slightly thicker, were substituted. There was no more discomfort to the patient undergoing this process than is commonly experienced in the wedging of one or two teeth in the mouth for the purpose of getting space for filling. There was no soreness which called out complaint from the patient. There was no favoring diet, nor was there any provision made for masticating while the teeth were in transit.

The teeth in their new position and articulation, as seen in Fig. 2, have remained stationary now for a period of three-quarters of a year. Not only is the external face improved, but a longevity is guaranteed to these teeth by their isolation which could not have been obtained by any other means.

The foregoing statement is not put forward as the report of a case to prove what is sometimes possible, or what trials nature may undergo and still survive, but it is set forth as an illustration of a principle in the treatment of irregularities which has never before been published. I have heretofore claimed something for æsthetic art in the practice of dentistry; for the above I claim nothing but a recognition of pure *mechanical* principles in dental practice. The wedge is one of the recognized mechanical powers. Its application here is identical with its use by the architect for a keystone in building his arch. Drive in the keystone and the arch is necessarily enlarged, and will continue to be enlarged so long as a wider keystone is admissible, and there is a support which will prevent the whole arch from tumbling in ruin to the centre.

In a course of lectures delivered on this subject, I took the ground that everything relating to the means to be used in regulating teeth was purely *mechanical*, and the history of inventions has shown what marvelous works are accomplished by the most simple of mechanical contrivances. The foregoing case illustrates that the simplest of all mechanical powers wrought all that could have been done by jackscrews, levers, inclined-planes, straps, bands, and pulleys combined.

## CAREER OF THE ELEMENTS OF TISSUES.

BY W. H. ATKINSON, M.D., D.D.S., NEW YORK.

Read before Am. Mic. Soc. of New York City, Dec. 12th, 1871.

Each body and process has a proper and definite career, whether in example of unity or community of presentment. The chemistry, morphology, longevity, and other aspects of elements of tissues, and tissues themselves whose aggregations and correlations constitute the organs of the human system, are all interdependent and mutually deducible by synthetic analysis and analytic synthesis.

Expression of states of physical and psychical condition is capable of being known and correctly interpreted by those who are familiar with such moments.

A complete record of the gesticulations (gestations) of a body, be it molecule or man, would embody its career from its first appearance to its final disappearance from the limit of range of our powers of observation.

Whether it ever enters into the range of desire of an element of a tissue to be something else than its proper self, depends upon the complete satisfaction of its natural spontaneous first affinities being denied it, which induces it to lend a listening ear to aberrant or secondary affinities that thus inaugurate abnormity or cessation of function, the first of which is disease ; the second, death !

This aberrant functioning may occur to any one of the series of elements that constitute the cycle of elements that limit the possibilities of size, strength, and longevity of the filament of tissue, that is only completed by each individual constituent coming to repletion of endowment in all respects (which is the example of perfect health and length of life), and aberrations may thus cut short the form, size, power, and longevity that type had preordained to the tissual possibilities. Thus disease is proved to be premature old age in the degree of its presence and extent of dominion of the nutrifying elements.

The grounds, then, of aberrant nutrition are the same as the grounds from which the factors of function take their origin, namely, the mucous mass of germinal matter of an impregnated ovum.

Health is uninterrupted normal career of all the factors of function. Disease is interrupted and deflected career of the same elements and bodies ; and death is cessation of career.

All that is necessary to get a clear conception of the career of the elements of human tissues, is to watch a Graafian vesicle and contents through the metamorphoses of impregnation and evolution of the various structures that compose the body of the full-grown fœtus.

From a mere vesicle (of double wall and contents) of oxidized nitrogenated hydrate of carbon with a hyperoxidized periphery or pellicle of its proper substance to mark the limit of its individuality, we may trace its ripening or metamorphoses of fitting for impregnation (and if this fail to be effected within the limit of repletion of force and form, death and expulsion, or local disease, inevitably result).

This act (impregnation), which is a sort of chaotification by admixture of sperm and germ in the mucoid cell-contents, not differentiated to sight by the best objectives; and after this the origination, to sight, of blastema, granule, nucleus, parenchyma, and cell-wall as the proper contents of the now enlarged impregnated or so-called "vivified" Graafian vesicle ; now an ovum proper, holding the potentialities (or their imminences) of limitation in number (in series and cycle), longevity, and size of cell, filament, tissue, and organ that in due co-ordination compose the perfect human type. What these potentialities really are can only be proved by a close observation of the results of their work when performed.

All germs, seeds, and buds are constituted of the germinal or mucous mass belonging to the class, kingdom, and variety to which they belong. In plants that bear seeds and pulpy fruits, an inversion of the leaf-germ, that without this would be used up as a breathing and digesting organ for the whole plant, becomes a new point of departure of growth by this inversion or turning in of the under (or breathing) side of the leaf-germ, thus permitting the sap to form into a stratum of condensed germinal mass in the form of cambium, arresting growth by this diversion, and causing or permitting the formation of a fruit-bud, capable of a new germination when the favoring conditions may present.

There are but two possible methods of disposing of the worn-out elements of tissues, namely, solution and dispersion, and shedding or casting out *per se* (encysting is a form of casting out or shedding).

The elements of tissue have a definite career according to the category to which they belong. Normal shedding results from the ageing of elemental bodies.

Abnormal growths are perversions of the methods of converting pabulum, and result in deteriorated tissue elements,—hence atrophy and hypertrophy of normal and heterologous growths.

Homologous growths nutrify for the territories to which they belong, and proliferate in the interest of their race. Heterologous growths vegetate on their own account, and hence retard or destroy homologous modes of growth by appropriation of pabulum belonging to the latter.

Homologies do not invade foreign territory. Heterologies are ever invaders of territory previously settled by legitimate occupants thereof.

Cultivation of the individual parts (or beings) monstrocises and renders sterile; while cultivation of the community of parts constituting the system refines, elevates, and renders prolific of well-gestated progeny.

There is a question that now presents, namely, Is conversion of one tissue into another possible within physiological limit?

The answer to this requires a definition of what is meant by *tissue*. If we include pabulum and blood corpuscles, there will be more reason to entertain the question. But if we mean to exclude them, and only include the products of these in cells and filaments, then a negative reply is incumbent on us.

The proved potentialities of the impregnated ovum include the range of the three kingdoms of nature, and their representations in crystals, cells, and soft solids, or crystalography, cellography, and corpusculography, as displayed in the mineral, vegetable, and animal careers of planetary presence.

Is it necessary to instance the mere bleb of mucous mass and the vibrio, the fusion of which laid the foundation for the fluids and solids of the beautiful correlation of tissues we are considering in the soft and hard parts of the body evolved from an impregnated human ovum?

In the enamel of the teeth there are veritable crystals. Whence come they if not from the potentialities held in that soft-solid body?

In the dentine there are pipes or channels for the flow and reflow of fluid. Whence are they and their microscopic work if not from resident potentiality akin to vegetable or cell life?

In the flesh there are not only connective tissues, granular and muscular elements, but also a host of soft-solid bodies careering throughout the arteries, capillaries, and veins in a fluid capable of permitting their rapid flight, or sudden arrest, without injury to their delicate natures or indispensable mission of manufacture and depuration of physical and psychical function!

That any element of tissue, or other body capable of being fed, cannot be induced to take excess of every compatible pabulum, is proof positive that each anatomical element knows when its demands are met, and acts accordingly. Happy would it be for mankind if each person were as clear in the perception of what is needed, and as prompt in taking only that measure.

The modes of conversion of normal into abnormal growth is not thoroughly known. But it is attracting more and more attention year by year, and gives hope of the attainment of power to understand and control them at no distant day by attending to the infinitesimals of microscopic bodies.

Necrosis of bones, after freezing, is of a different type from that resulting from mechanical lesion, and lesion of nutrition from invasion by disease of zymotic origin. The cannon bones of the legs of fowls and sheep deprived of the bones of the feet, serve as good means of locomotion for indefinite periods after being killed by frost, the soft parts falling off and healing up nicely at the junction of the living and dead bone.

I knew one case of this display of tolerance of necrosed bone in the human body; complete white necrosis of the palatal plates of the superior maxillæ, without line of demarkation in the bones between the dead and living portions. The soft parts sloughed, so as to expose to view the beautifully white and hard plates of these bones for more than half an inch antero-posteriorly, and nearly as broad latterly on each side, presenting a nice buttonhole edge of the gum tissues, without the least sign of discharge. The case had been of eleven years' standing when I first saw it, and did not alter enough in two years to be noticeable upon close inspection.

I operated upon a case to-day similarly situated as to absence of line of demarkation between dead and living parts. It occupied the site of the ascending ramus of the left end of inferior maxilla, anterior and external aspect. There was no shake or sign of separateness of dead from living bone. The case was of one year's standing, and had been treated by poulticing and lancing three or four times externally in the cheek,—by the way, the very worst possible management of such case. Light is loudly called for in surgical conduct of necrosis and caries.

The reverse of the doctrines of the respectable books and teachers is the truth—"expectante" may do for some forms of specific derangements of nutrition; but in surgery, as in morals, "right a wrong action at the first possible feasible moment" is sound and reliable doctrine, high authority to the contrary notwithstanding.

Every example of caries that I have ever seen presented evidence of nature's effort to heal the breach by abundant pouring out of pabulum, partial organizing and deterioration, and breaking down and discharge of the new growth, as and in company with pabulum, pus, sanies, and ichor.

A repetition of this effort at reproduction and destruction, following each other in succession, constitutes the history of caries, and should advise us to remove the offending dead portions, so as to allow the tissue elements to do their work of reproducing the part.

Just what it is that destines certain portions of the circulating pabulum to become mucous mass, granular mass, or nuclear mass, parenchyma, and cell-wall of the embryonal corpuscles, white corpuscles and red corpuscles, and to set apart for specific use portions and masses of these to be used as wandering corpuscles, wandering cells, some here, some there, to constitute nutriment to local territories of parenchymatous islands, and evoke their specific functional activities, and to be spun into fibrous, muscular, glandular, and nervous tissues, and to make up bony, horny, dentinal, enamel, and other epithelial tissues, does not appear to our organs of sense; but that they variously do fulfill these purposes is clearly cognized by all who give the requisite attention and research into the subject.

Whether a definite number of calculable units enter into each tissue, forming and maintaining it by a serial supply of succession in lineal order, it is at present difficult to prove; not so much from the impossibility in fact, as that living beings are not quite enthusiastic enough to supply the limitless quantity of subjects required for the observations. That type, temperament, and diathesis have their seat in the elemental mucous mass out of which beings are developed in lineal descent, is beyond dispute; but that each functional act is the spontaneous work of elemental bodies, too fine to be objects of sense, is not yet squarely recognized and acknowledged, but the bitterest opponents of spontaneous generation acknowledge the multiplication of cells by spontaneous division, thus completely conceding the essentials of the doctrine that all acts are of necessity spontaneous, as the explosions of powder, whose spontaneity is set free by contact of a spark.

I am aware that I have instanced the spontaneity of an artificially produced body,—a body in which the capacity to pass from the solid condition into a gaseous state was itself but another phase of condition, discovered by observation, remembered and made use of by those who manufacture explosives for a purpose. Plan and purpose seem to hold the dominion of career in all forms of bodies, and correlations of these in simplest and most complicated forms.

We may now ask not only what career is, but also what influences it when inaugurated to act in normal or abnormal manner, or render it unable to act at all; and reply that career is a succession of motion and rest, inhaling and exhaling, waking and sleeping, and a thousand and one other methods of expressing the becoming and departure of the bodies, processes, and functions amid which we are and of which we become more or less conscious at each observation of our lives; we being the resultants of the intercurrental lines of career of mineral, vegetable, and animal correlations just hinted, no less than the projectors and factors in perpetuity of like career for our progeny.

Without perplexing ourselves with questions of the origin of the stock by creation, whence we derive the parent forms of body and function, we can very readily verify procreative lines of hereditary descent. But when we are asked whence the renewals of the worn-out tissues, and give the reply, from the blood, it is evident that we must account for the renewals of the fluid and corpuscular parts of the blood-column, or confess ourselves driven back to creation *de novo.* The microscope comes to our relief, and displays to our delighted sense of sight the young corpuscular elements of the blood-stream, and reveals their source, or, as is said, sources, in the *lymph glands*, the *spleen*, and the *medulla* of bones, from whence we derive the seed or germs of these seed-bodies of tissue, namely, corpuscles, out of which supply to renew all the tissues of the body that are capable of renewals by the acts of nutrient moments.

The enamel has but a single series of cells to build the proper columns of this structure, and hence there is no such thing known as reproductions of enamel by nutrient or reproductive function,—once lost it is forever absent.

It would, with our present knowledge, be a gratuity to assert that the corpuscle afforded by lymph gland was connective tissue, embryo, and pabulum, that by the spleen destined to renew and feed muscle, and that by medulla to supply and support neural tissues. But that white blood corpuscles do convert into connective tissue corpuscles, and red into muscular elements, would be less hazardous to state. However rigidly true the "*omne vivum ex ovo*" aphorism may be, yet a wide difference of nidus for incubation of these potential beings obtains within the range of positive observation and understanding.

A close inspection will reveal that oviparous animals have no distinct separation between thorax and abdomen,—*i.e.* have no diaphragm, while viviparous animals are endowed with this differentiation of anterior and posterior portions of their trunks,—*i.e.* have diaphragms. Thus type does its work of construction, and leaves the record for us to decipher by endless toil of observation, that we may deduce the synthesis by the labored analysis that ultimately reveals plan and purpose as regnant among molecules and men, from silex to seraph, as modes of manifestation of mind capable of cognizing a single source of production and maintenance of all and of each.

## THE APPLICATION OF MATRICES TO EXTRAORDINARY CASES.

BY LOUIS JACK, D.D.S., PHILADELPHIA.

In treating, on a former occasion, of the use of matrices in filling teeth, the cases were supposed to be of considerable size, but of ordinary character in other respects. The method was also shown to be more particularly applicable to cavities upon surfaces not easily accessible to the direct approach of the plugging instruments. I now propose to explain, in detail, methods by which four unusual and difficult classes of cases may be rendered more manageable by the employment of similar means.

The preparation of the cavities after the caries is removed will be the same as previously described, with such alterations as the difference in situations may necessitate. At this point it may be stated that too much importance cannot be attached to the form and size of what may be called the throat of the cavity. This is the space bounded by the deeply-concaved outline of the masticating edge of the cavity proper and the hollowed surface of the matrix. It should always be sufficiently ample to permit free access to the whole space.

I shall now proceed to describe the treatment of the cases:

*First.* Very large cavities on the distal surface of the inferior molars, where the space is unusually great from the absence of the adjoining molar.

When this opening is not considerable, the nearest tooth sufficiently high, and the proximate surface erect, it is simply necessary to select a steel matrix having a depression of suitable dimensions to cover the distal opening of the cavity, and reinforce this with a piece of hard wood of proper size to fit between the parts, fastening the matrix to the wood by gum-shellac. This fastening is secured by heating a fragment of the resin upon the steel and applying it to the wood. This appliance is next fixed, as usual, by wedging, where this is required.

If the next molar should be insufficiently high, not firm, or from its form not offering a secure opposition to the pressure to be used, I have found the utmost satisfaction in the use of an appliance formed of vulcanized rubber. After temporarily filling the cavity, an impression is taken of the parts, and, on the cast, wax is adapted to the space, in some cases carrying two arms forward to the anterior tooth, in order to grasp the tooth to be operated upon. It may sometimes happen that a small wax impression of the space may be trimmed to suitable form, and immediately copied in rubber. When this is accomplished by the usual processes, the part of the appliance facing the cavity is cut into conformity with the depression of the steel ones, when it will be ready for use.

This plan will sometimes be found useful in the superior molars similarly circumstanced. I remember one such case, which would have required for the packing of the foil, in the ordinary way, over an hour's time, which was easily and perfectly done in forty-three minutes, and which I could now as well perform in a half hour.

*Second.* For the distal side of molars where there is no posterior tooth, the process is similar to that just described. A correct impression is made of the tooth, including the gum back of it and the anterior tooth. On the cast secured from this, wax is fashioned to cover the adjoining tooth, to pass along the outer and inner sides of the one to be operated upon, and continued around its distal surface, covering the gum somewhat. This is copied in rubber, and is not required to be thicker than a full line.

It will be noticed that this exposes the crown surface of the molar, thus permitting free access to the cavity. By this means distal cavities of second and third molars may be successfully approached without unusual distress to the patient. Difficulty will sometimes be encountered in removing this appliance, when the arms should be cut away by scoring through them, which will immediately permit the release to be effected.

*Third.* The lingual surface of the inferior molar.

In the formation of the cavity the portion of enamel above the upper border of the cavity is hollowed out in conformity to the general shape of the throat of proximal cases, but not to the same degree, unless this wall is weak, when it should be cut away entirely, since solidly packed gold is more serviceable than enamel which has lost its supporting dentine.

The retaining-sides of the cavity should be carefully grooved and polished, as before described.

The preliminary steps for securing a suitable matrix are the same as mentioned above. The rubber should cover the adjoining teeth; should reveal the grinding surface of the subject tooth; should pass along the buccal and lingual faces of the other teeth, and have more strength in the inner side than usual. It is unnecessary to cover much of the gum, but it is of importance that the impression of the lingual surface be an accurate one. A very close application of the rubber at the cervical wall is secured by scraping away a little of the plaster cast at this point. It is also important in some cases to press the gum away, as a preliminary step to effect the descent of the matrix beneath the cervical border of the cavity.

The best quality of material for these purposes is what is called black rubber, as it is less brittle when hard than the other descriptions of vulcanite.

*Fourth.* The proximal cavities of linear form at the cervix of molars and bicuspids.

This class of cases, on account of their situation being so far from the usual point of approach, is almost out of reach. It is inadmissible to cut down to them from the grinding surface, and unless a large space is made by some means, a satisfactory result is scarcely attainable.

I do not hesitate to make the approach by removing the buccal wall, thus cutting a clear channel-way into the cavity. The retaining-grooves are then made in the cervical and its opposite wall. The cavity becomes thus a narrow and shallow opening, extending, as is usually the case, entirely across the neck of the tooth.

I next prepare a piece of steel, or of silver, fitting it in place, and cutting a rounded groove upon it, opened at the end, corresponding to the buccal opening. The filling is effected with the automatic plugger.

These recommended plans are not offered as suggestions, but are the results of repeated and successful operations. I have purposely confined myself to the driest and most necessary details in my description, as it seems to me the methods are so simple as to require no elaboration.

Although somewhat out of place, I will here supplement an omission in the former paper on this subject, by describing a most effectual and simple plan to secure the steel matrix. This must have proven a difficulty with many who may have made attempts in this direction, and who may not have secured reliable means for fixing this appliance. It has doubtless been noticed that when the wedge was not properly formed, or when the space was much wedge-shaped, that the malleting, particularly with the automatic instrument, jarred loose the fixtures, to the ruin of the operation.

The wedges should be of hard wood,—"Turkey-box" preferred—and each one should be a double wedge, that it may be pushed in both directions if necessary; two of these will sometimes be required. The width most usually applicable is one-fourth of an inch, of variable thickness. Before introducing the wedge, it should be dipped in a thick solution of gum-sandarac, in alcohol, if the parts are dry. When this is done, it will scarcely ever occur that the appliances will move in the least during the application of whatever force may be used for introducing the filling.

With increased experience, my confidence in this method as a means of enabling the most difficult distal surfaces to be readily filled has enlarged. All who have made the attempt must know with what anxious and wearisome labor, and with what distress to the patient, difficult operations are effected, and I cannot restrain my satisfaction that these conditions may now be very greatly lessened.

Soft and hurriedly-performed fillings are no longer of use as a means of preserving the teeth; but careful, exact, comparatively solid plugs, having thoroughly smoothed surfaces, are not so much the order of the day, as they are the expression of the necessary essentials of successful results.

## PREPARATION AND TREATMENT OF TEETH FOR FILLING WHEN THE PULP IS EXPOSED.

BY S. B. PALMER, SYRACUSE, N. Y.

THIS is the title of an article published in the December (1871) number of the DENTAL COSMOS, under circumstances that call for some additions and a word of explanation. The article referred to was written some two or three years ago, and forwarded to the Cosmos; but, as it did not appear, the paper was forgotten. A short time before the matter for the said number was made up, I received it in proof,—looking as old as to *practice*, and to the writer as strange, as the play represents Rip Van Winkle as looking after his long sleep. In justice to the editor, I would say the proof was received in time for any ordinary corrections, but, in contrast with my present practice, I found so many changes would be necessary, that the original had to go to press.

I give my present practice, founded upon observation and experiment. Formerly but one method was recognized in the treatment of teeth with exposed pulps. Now, we have to decide whether we will attempt to preserve the pulp, or remove it and fill the roots. Although the larger number are still treated by the latter method, I am not ready to pronounce the sentence of death upon every wounded and bleeding pulp. Successful experiments have so changed my practice, that in cases of wounding the pulp while excavating the cavity, I am ready to give the injured member at least a fair chance for life.

We have nothing new to present in the way of capping pulps, having been unsuccessful with metal and other hard substances; though the desire for success was so great, that we have experimented with whatever has promised even a shadow of hope. Though we have failed in accomplishing such results as are recorded by others in preserving pulps alive, the cases which have proved satisfactory are in sufficient proportion to warrant the practice; so that a slight exposure of the pulp, even to cause bleeding, or when the dentine is so thin that there is pain under pressure, is not regarded as sufficient indication that the pulp must be devitalized before filling. In obscure cavities, or when the opening to the pulp-chamber is large, or when the pulp has become inflamed, my faith is not sufficient to lead me to attempt to save it. The treatment for cases that I believe to be favorable is as follows:

If the tooth must be plugged at once, I would use creasote first, then fill with oxychloride of zinc; when sufficiently hard, excavate, and fill with gold.

When time will allow, I use Hill's stopping instead of the oxychloride, by preparing a shaving cut from the cake, of the right size to cover the bottom of the cavity. When ready, wet the cap in chloroform, which will immediately soften it, and apply this covering over the exposure, and fill the balance of the cavity with the stopping, warmed in the usual way. After about six months, if no difficulties present themselves, such as indications of inflammation or death of the pulp, I remove a portion or the whole of the filling, and fill with gold.

I believe the pulp, in a healthy condition, has the ability to protect itself by an osseous deposit; but the great hinderance to this most desired result is, imperfect protection.

Hill's stopping is not always absolutely in contact with the walls of the cavity. The os-artificiel for this reason is well adapted; I cannot see that it has any real virtue aside from this, in stimulating the pulp to perform its office. But if the treatment proves unsuccessful, it has preservative properties which often prevent the pulp from putrefaction, and the tooth from assuming the usual opaque appearance common to teeth in that condition. In other words, such fillings appear to impart antiseptic or embalming properties to a devitalized pulp to such a degree as to have obtained for this article an unwarrantable reputation for preserving it alive.

Omitting the practice or treatment comprehended in the article referred to, I will conclude with the result of experiments in the use of arsenious acid for devitalizing the pulps of teeth. The most careful observation has convinced me that its effects are governed by laws as unerring as those which govern its action when taken into the stomach.

The quantity applied, and time allowed for its action, determine the result so uniformly, that I would as soon make an application to remain in a tooth two weeks as two days; only harmonize quantity and time, and we may calculate the effect with sufficient accuracy.

Who has not acted upon authority, and commenced with hooks and harpoons to draw a bleeding pulp from its chamber, until compelled to desist by the patient, from the idea that for the preparation to remain a longer time would endanger the tooth? I have. There can be no more poison absorbed into the pulp or dentine than is used. In nearly all cases, where a minute portion of arsenic is applied, the extreme points of the pulp will retain their vitality for one or two weeks. While in this condition, there is little danger or difficulty to be apprehended from periostitis.

There is a marked difference in the symptoms arising from a free use of arsenic, or from a minute quantity. The former causes trouble in a few days' time after its application,—a high state of inflammation of the socket, and gums surrounding the tooth; while, in the latter case, there is no trouble until the pulp has undergone decomposition,—not unlike ordinary cases of decomposition of the pulp from natural causes. I have, in a number of instances, made use of arsenious acid and creasote, covered with Hill's stopping, merely to deaden the pain in teeth when the patient did not wish them extracted, and had no intention of having the roots filled. Several such teeth have the same filling in them yet, after six months or more time has passed, without giving any trouble. In such cases, I presume not more than one-half of the pulp had been reached by it, and the remaining portion had died away gradually. This is the result of my experiment in the use of arsenious acid for devitalizing pulps. I use the powder in the dry state. With the point of an excavator or small instrument, I place the quantity I wish to use upon porcelain or marble, moisten a small pellet of cotton with carbolic acid or creasote; with that take up the powder and convey it to the pulp, covering the whole with Hill's stopping, or, in cases of extreme tenderness, with gutta-percha, which is softer. I have not been successful with wax, or cotton and varnish.

# PROCEEDINGS OF DENTAL SOCIETIES.

## FIRST DISTRICT DENTAL SOCIETY OF NEW YORK.

A MEETING was held December 5th. President Atkinson in the chair. Subject for the evening, "Advisability of using Acids in removing Salivary Calculus."

Dr. Atkinson read the following paper:

IF we wish to be able to decide upon the advisability or the reverse of any course of procedure, it is necessary for us to at least have some conception of the principles involved in the premises.

What principles are necessary for us to know to entitle us to an assertion of results in any given case before making the application of acid or other agent? The principles of attraction and repulsion, or the principle of affinities, are those the knowledge of which will enable us to properly diagnose, prognose, and treat the cases under consideration.

In some sort every act of nutrition and denutrition is an expression of the laws of affinities.

Wherever the due balance of acid and alkaline fluids is attained in the mouth the teeth will be clean, and hence need no sort of interference, mechanical or chemical, to render them healthy.

Does this last condition obtain in civilized society? Not to a sufficient extent to warrant us in supposing any mouth to be healthy before thoroughly testing for reactions in each case. Mechanical division favors the display of affinities, because the proportion of surface to exposure is greater than in masses. Chemical affinity is a surface affinity, and like all affinities when satisfied become *nil.*

These laws indicate that the proper cleaning of teeth can only be effected by securing the action of those cleansing affinities.

Where calcareous accumulations have forced the gums away from the necks of the teeth, dull-edged or round-edged instruments, of the shape to fit the necks of the teeth, should be used to break off the incrustations, applying the force toward the gums, thus peeling off the scales of lime and breaking them up fine enough to be readily washed away or dissolved by sopping the places with "aromatic sulphuric acid," which not only dissolves the fragments of lime but contracts the margins of the gums about the necks of the teeth, annihilating the little pockets in which lime deposits take place; after which the teeth should be well polished with slips of wood, tape, or cords upon which a paste of pulverized pumice-stone is smeared. The wood may be used in the fingers, or with Green's pneumatic burring engine, until every particle of calculus has been removed, and a fine polish secured upon the enamel, dentine, or cement.

When this has been accomplished, the mouth should be thoroughly washed out repeatedly with a saturated solution of bicarbonate of soda. This should be followed by smearing the gums and teeth with a paste of tannin and glycerin, rubbing it well in between the teeth and over the entire alveolar borders.

Faithful brushing by the patient will thereafter secure a healthy state of the teeth and gums, so far as deposits of calcareous matters are concerned.

Dr. C. P. Fitch read the following paper on the same subject:

Gentlemen: It has been forcibly said that eternal vigilance is the price of liberty. And with more than equal emphasis may it be said, with reference to both patient and operator, that eternal vigilance is the price of preserving intact the human teeth. All things disappear from use; but the teeth disappear mainly from neglect and abuse.

Cleaning the teeth is a topic upon which more labor has been bestowed in theorizing than in practicing. But from a cursory glance it would appear that enough had been said and written upon this subject to have secured its proper observance.

It may be remarked that the teeth may be considered thoroughly cleansed when all foreign matter has been removed without affecting deleteriously the essential structure of these organs, and their roughened surfaces properly polished.

It is a matter of very little importance to the intelligent and expert operator whether the agencies employed be the sharpened steel, the brush, powders, and lotions of various qualities, and other appliances; or all of them combined. The main point is to accomplish the object. All gentlemen of our professional guild desire, if they do not actually employ, the instrumentalities that will most expedite the final result without injurious consequences; especially will this be the case whereever a full practice is experienced, and the consequent importance of economizing time enters largely into the account. It becomes, then, a question of some little importance, when considered from this low standpoint; but when viewed from other considerations, which enter largely into this subject, it becomes a matter vital in its consequences, perhaps more with reference to the results obtained than the means used.

The subject under consideration this evening has to do with a particular class of agents; and it has fallen to my lot, by appointment, to point out the advantages, if any, as well as to indicate the disadvantages in their use.

The question, Should acids be employed in cleaning the teeth? I propose now briefly to consider.

This subject naturally divides itself, and may be considered under two aspects,—the *teeth*, and the *substance* proposed for cleaning them.

With reference to the first division, the following particulars claim attention: The character of the elements which enter into and constitute the structure of the tooth; the proportion of elements and the manner of their combination; or, in other words, the physical idiosyncrasies that afford the best and most durable tooth structure; the existing conditions of each and every set of teeth presented for cleaning; the character of action which most rapidly affects the teeth. Having settled these points as far as they can be settled, and having observed other peculiar and unique conditions, should any exist, the dentist is prepared to select from his Materia Medica, and to use in the most effective and harmless manner, that which will the readiest and at the same time prove the most certain to subserve his high purpose.

It is not my present intention, gentlemen, nor is it in the line of legitimate inquiry, to enter into an analysis of the above questions; but I wish to refer to them as being significant and fundamental, and decisions should be made in the light of these questions, while having the teeth under inspection for cleaning, or, indeed, for any or all other dental operations.

The second and main division of this question, the question under examination this evening, proposes to consider the advisability of employing acids for cleaning the teeth.

An acid may be defined as being a substance arising from the union of either oxygen or hydrogen with some other substance.

Formerly oxygen was considered the only acidifying principle, but later it was discovered that hydrogen was also an acid maker. Most of the acids are binaries, that is, composed of two elements; as, for instance, sulphur and oxygen, nitrogen and oxygen, chlorine and oxygen. The acids are sour to the taste; turn vegetable blue red, and are electro-negative. They are mostly oxides of oxacids, and when united with bases the product is a salt.

They are divided into mineral and vegetable. The former are inorganic, the latter organic, compounds. Some of the organic acids, such as oxalic, tartaric, citric, malic, etc., are found already formed in certain plants and vegetables; but the most of them are the products of the action of reagents upon other organic bodies.

The inorganic or mineral acids, sulphuric, nitric, hydrochloric, have a strong affinity for and combine readily with alkalies, alkaline earths, and earths. Indeed, so strong is their affinity for these bodies, that they will seize upon them whenever brought in contact, and will take to pieces beautiful structures, such as the human teeth, in order to accomplish and satisfy their inordinate desires.

The enamel and dentine, constituting nearly the entire tooth, are composed largely of the phosphate of lime; also traces of the phosphate magnesia and fluate of lime are found. Hence many of the acids decompose the teeth rapidly, and if kept long in contact will entirely destroy these beautiful organic bodies, and inorganic compounds will be evolved, determined by the specific acid employed. It is by such analysis that the elements forming a tooth are ascertained.

To the intelligent dentist, who has never employed acids for cleaning the teeth, the announcement of this question is at once startling. Alike startling and abhorrent would be the proposition to consider the advisability of a familiar handling of the rattlesnake (Crotalus horridus), because the oil of this reptile had been found highly beneficial in cases of otitis. But these snakes are handled, gentlemen; but it is much safer to perform this handling after the creature has been deprived of all power to injure or to infuse its deadly *virus.* So should the acids be treated in cleaning the teeth. In this entire family of agents great chemical power resides; but when used rightly this power is harnessed and controlled, and in a certain sense is rendered harmless, and becomes an agent of good, subserving specific purposes with great certainty and uniformity of action and result.

How should they be used? Never in full or officinal strength. For the removal of the various concretions of lime from the teeth I employ a steel instrument; afterwards, if necessary to use an acid at all, I should employ a diluted form of nitro-muriatic acid, combined with silica and the oil of gaultheria, and with a piece of orange-wood, properly shaped, carry this acid compound in minute quantities to the precise surface of the tooth needing to be cleaned, allowing the patient to rinse the mouth frequently with some pleasant alkaline lotion during the cleansing process; closing the operation with a free use of prepared chalk or lime-water, and the instrumental polishing of such surfaces as require it. Other acids may be used with equal beneficial results, if properly diluted and their action immediately neutralized.

I think, gentlemen, that acid agents should be used with extreme care in cleaning the teeth. They should always be retained in the hands of the dentist; never allowed for general use; and while recommending their use in certain cases, yet the advice should go coupled with a warning and a caution; otherwise, in the hands of ignorant and designing operators, much harm will be done. The evil results attending their use should be distinctly and fully understood, and great care, in every instance, of their use enjoined. The immediate subsequent employment of alkaline washes will be found highly important; indeed, should be insisted upon as imperative, in order to neutralize any free acid remaining upon the teeth.

Dr. J. S. Latimer continued the subject by reading the following paper:

On the occasion of the late meeting of the American Dental Association, Dr. Atkinson is reported as saying: "In cases where there is a deposit of salivary calculus, I advocate, after removing the deposit, the use of the pneumatic engine, with porte-polisher of wood and prepared chalk, after which I use dilute elixir of vitriol, applied at the juncture of tooth and gums (care being taken to prevent its coming in contact with other parts of the mouth). I maintain that the acid will not act chemically on the living dental tissue, but only decompose the remaining particles of lime deposit, impossible to be removed mechanically."

For a considerable number of years we had, occasionally, warnings against the employment of acids for the removal of calcareous deposits from the teeth; but after a time we saw no more of them in our current literature, the supposition apparently being that all intelligent and reputable practitioners stood no longer in need of them; and as to the charlatans and street-peddlers, they would never mend except under the gentle persuasions of the sheriff.

But now, after all these years of ignoble banishment from reputable practice, this method is to be revived, and made respectable by the recommendation of one who, of all others, ought to be most careful of his utterances. An unknown man can do little harm, because he has little influence; but the influential members of our profession need to ponder well before they speak or write.

I am aware that the probably accidental omission from the report referred to (*Dental Times*, vol. ix. p. 78) of Dr. A.'s subsequent use of alkali for cutting short the work of the acid, makes his remarks doubly dangerous, and does him an injustice; but I deem the practice a dangerous one at best, as I shall now try to prove.

In the first place, it is assumed by Dr. A. that acids will not act chemically upon living tissue.

This, it seems to me, is like a man's assuming the hypothesis that a lion cannot devour a *living* man, and on his faith in the fact, submitting himself fearlessly to the claws and fangs of the royal brute; or rather, to keep the parallel, submitting other people to those talons and fangs. As to the matter of precedence in the death and solution, or solution and death, I care very little just now. The question is, *Does dilute sulphuric acid act on dental tissue?* That it does not, even Dr. A. doubts, for he practically admits it when he hastens to neutralize it with a solution of soda bicarbonate.

All the so-called mineral acids act promptly upon enamel and dentine,—most vigorously when concentrated and hot, less so when cold or diluted, but always *promptly*.

As to the desirability of having the necks of the teeth entirely freed from nodules of tartar, there can be no difference of opinion; but we must see to it that we do not damage our patient more than we benefit him.

It happens that the obnoxious calcareous excrescences are quite soluble in dilute sulphuric acid, but it also happens that the entire dental surface exposed is eroded, only more slowly because of the difference in density.

I submit whether it is not better to labor somewhat longer with delicate scalers than to resort to so doubtful an expedient as that recommended by Dr. Atkinson.

## Discussion.

Dr. Atkinson said he had named in the paper all the principles involved in this discussion. Chemical action is always a surface action, and is first upon that for which there is the greatest affinity. Acids act upon dead bone before affecting the living osseous structure, and upon calcareous matter before the vital structure of the tooth. More harm may be done with edged scalers than by a blundering use of acids. Acids should be used by dentists as prescriptions are used by physicians, and not by the people generally. The teeth should be well polished with the pneumatic engine, or with strips of wood and pumice. What is the condition of mouths when tartar—falsely so called—collects but that of scurvy.

Precisely this condition is found among scorbutic sailors who are deprived of acids. For this reason all the vegetable acids are grateful to them. In mouths where there are ulcerous patches, it is often a lack of acids that causes that condition. In such cases, if dilute acids go even all over the mouth, they form a membrane over the ulcers that assists them to heal.

The greater part of the calcareous matter should be broken off the teeth and washed out of the mouth, and then dilute sulphuric acid used with a stick and pumice, working rapidly until the teeth are clean. We have not been thorough enough in cleaning teeth. There has been more talk than work about it. We had rather clean *one* tooth *thoroughly* than blunder over them all!

Each one must follow his own perception of the truth. He had no fear from the judicious use of acids. It takes a long time for a tooth even in a retort to be decomposed. He uses acids constantly, and knows whereof he speaks. If patients would use silk or pack-thread, there would be little need of our services in this direction. In his own practice the patients who follow his direction fully have but little trouble of this sort. If a tooth could be kept perfectly clean, it would be preserved until the last days of one's life.

Dr. Corydon Palmer said he had noticed that some of the pastes sold at the country fairs were very efficient in cleansing the teeth, and in conversation with a druggist learned that they were composed of several of the alkaline earths in combination with muriatic acid.

Dr. Fitch said the whole subject must turn on a knowledge of the affinities,—a knowledge of the structure of the tooth, and of the affinity of acid for the tooth. Formerly he was driven to the wall, for there were some teeth he could not thoroughly clean. He put teeth in bottles of all the different acids to try their effects, and finally, some six years since, used acids privately on these bad teeth in removing salivary calculus. He did not let his patients know he used acids, for fear they might get into the way of using them.

Would a man shave with a jack-knife, or with a razor with which he might either shave well or cut his throat? He thought it had been well said that chemical action is a surface action; considered that acids would act more quickly on dead bone and on lime deposits than on healthy bone or tooth structure. But they must be used carefully. They act as tonics, bringing up a healthy cell action, and can be put just where they are wanted. He considered that dentists were not sufficiently paid for their operations, and particularly for operations of this kind; thought the community should pay as they do to physicians and surgeons, who receive large fees for critical cases. In cleaning teeth, a polished surface could not be left with scaling instruments. The microscope would show this.

Dr. Jarvis said he felt compelled to oppose the use of acids. As to Dr. Fitch having used them without the knowledge of the patient, he did not believe it could be done; thought any patient would know the moment they were put in contact with the teeth; believed disastrous results would follow if this practice went much further; could not see a good reason in the remarks of Drs. Atkinson and Fitch for the use of acids; challenged any one to give a good reason for their use at all; thought there was too much of a tendency to shirk the work necessary in cleaning teeth. We want to do it too quickly. If such be the case, and we think it takes too much time, let us kick that fear over, and oblige patients to sit longer and pay more. We *can* clean teeth. It is absurd to suppose we cannot. The acid will act more readily on the tooth than on the tartar. If any were astonished at that statement, he wished them to understand that he meant in proportion to the density of each. If applied to the teeth under the gum, it is not always possible to follow it up and remove or neutralize it. It is not possible to get up under the gum with the pneumatic engine, or any other engine. He condemned this method, because he considered it unnecessary, and because he believed it would inevitably produce bad results.

Dr. Francis was glad the term "tartar" had been criticised; considered it a misnomer, and hoped the time would come when it would be discarded entirely.

Several years ago, with surprise he heard Dr. Fitch say he had used acids in cleaning teeth; had never dared use them in his own practice; related a case of teeth that had been cleaned with a stick and acid, and they were almost entirely denuded of enamel. Also a case where the teeth had been injured by the habit of sucking lemons. As to Dr. Fitch's remarks in reference to compensation, he hoped the profession would help to elevate the public to the point of paying better prices for better work. He hoped the time would come when the practice of dentistry would be regulated by law.

S. G. Perry, *Secretary.*

## THE ASSOCIATION OF THE ALUMNI OF THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The second annual meeting of the Association of the Alumni of the Pennsylvania College of Dental Surgery will be held at the college, on Friday morning, March 1, 1872, at ten o'clock.

Essays upon any subject connected with dentistry are solicited from any of the Alumni, whether members of the association or not. Early notice should be given to the undersigned by those who expect to present them, while those who cannot be present will have their essays read before the association if forwarded sufficiently early.

The annual commencement of the college will be held on the evening of the same day.

E. R. Pettit, *Secretary*, 1104 Arch Street.

# EDITORIAL.

## NEW FIELDS FOR INVESTIGATION.

Perhaps no specialty of medical science and practice has contributed so largely to general medicine, surgery, and their associate sciences as that of dentistry. Its physiology, pathology, and therapeutics are to-day more satisfactory, its diagnosis more positive, and the results of treatment more certain, because more specific, than in any other branch of medicine.

So true is this, that the best minds in the profession are a unit in the diagnosis, prognosis, and treatment of abnormal conditions of the oral cavity.

The attentive reader of the journals cannot have failed to notice this fact; and herein is the explanation of the sameness which characterizes the reports of papers and discussions before the various societies.

There are yet, however, fields almost wholly untilled, more inviting and promising than many which have been so faithfully explored. Among these is the *correlation of systemic and mental with dental development.* That there is a mental and physical correlation, on which, to a great degree, may be predicated from either a natural sequence in the other, is a fact generally accepted.

Physiognomy and phrenology—whatever may be thought of their claims as exact sciences—have unquestionably established that there is a uniform relation between certain physical characteristics, and the disposition and mental capacity of the individual. We instinctively estimate mental power by the size and shape of the head; the disposition, by temperament and feature; and business men, as a rule, are quick to recognize trustworthiness by external signs.

It is needless to multiply instances in which the appreciation of this harmony of physical, mental, and even moral peculiarities governs us in all the relations of life.

Cuvier, from a single bone, was able to delineate the entire skeleton to which it belonged, and to pronounce the habits, character of food, and other peculiarities of the animal of which it was a part.

Even an unscientific correlation of correspondences detects various resemblances between two individuals, after the attention has once been attracted by a single one. There is, doubtless a far-reaching law of correspondences, the extent and significance of which is yet but dimly comprehended.

There is a correspondence between dental development, and accompanying physical and mental conditions, which it is the opportunity of the dentist to determine, and on the determination of which is involved data for diagnosis and prognosis of incalculable importance. Here, then, is a field, the cultivation of which belongs to dentistry, but its fruits to humanity. On data thus obtained, questions affecting the amelioration of abnormal conditions,—the diagnosis and prognosis thereof,—and involving family interests and social relations, can be definitely determined. In fact, the satisfactory elucidation of these problems of correspondence involves interests, the importance of which to society and posterity, as well as to individuals and their marital relations, can hardly be overestimated.

The solution, for instance, of the question, Whether imbecility in a child is the result of intra-uterine influences, or of subsequent causes, can, it is believed, be definitely determined by the structure of the maxillæ, teeth, palate, uvula, and fauces. Only let sufficient data be collected to demonstrate that between congenital imbecility and normal mental development there is a sure line of demarkation in the characteristics of the organs named; that hereditary syphilis registers itself unmistakably in these structures; that possibly tubercle, scrofula, and cancer, make their distinguishing records,—and it is not difficult to see the value of such means of diagnosis.

## ALVEOLAR HEMORRHAGE.

Instances of severe and persistent hemorrhage following tooth extraction, so profuse or long continued as to endanger life, are occasionally reported in the journals. Indeed, there are several cases on record —two quite recently—of fatal results from this cause. Instances are not lacking of death caused by simple incision of the gums over presenting teeth during first dentition.

The hemorrhage which ensues from either of the causes named may be arterial, venous, or capillary, passive or active, of local origin or dependent upon systemic conditions.

Of local causes, there may be a diseased condition of the blood-vessels, a want of contractile power in them, or a mechanical impediment to their contraction.

Of systemic causes, there may be an undue fluidity of the blood, from modifications due to anæmia, scurvy, or other abnormal conditions, or consequent upon changes produced by mercury or other medicinal or poisonous agents.

A too frequent or too powerful action of the heart, from whatever cause, is also to be enumerated as among the conditions tending to prevent success in the treatment. The indications of treatment in the order of natural selection and importance seem to be,—

1st. To secure the most favorable position of the patient.

2d. The application of astringents or styptics locally, guarding as far as possible against the solution of the clot by the fluids of the mouth.

3d. The employment of local pressure.

4th. To lessen the force and frequency of the heart's action.

5th. To secure nervous sedation.

6th. To correct abnormal conditions of the blood.

7th. To induce systemic contractility of the blood-vessels.

8th. To divert the circulation to other parts of the body.

The position most favorable to the patient, and convenient to the operator, is a sitting rather than a recumbent posture,—the law of gravitation being in itself conducive to the desired result.

The local application of astringents or styptics—vegetable or mineral —acting by promoting contractility of the tissues involved; or, chemically, by coagulating the blood around the orifice of the bleeding vessel; or, mechanically, by inducing a coagulum by their presence at the mouths of the orifices.

Of the purely vegetable astringents, tannin, catechu, krameria, and kino are efficient examples. Of the mineral astringents, acetate of lead, alum, and the sulphates of zinc, copper, and iron, are among the most noted.

The mineral acids,—nitric, sulphuric, and muriatic,—diluted with an equal part or more of water, are sometimes employed. The persulphate and perchloride of iron, either in powder or solution, are also recommended; but if not sufficiently diluted, are liable to cause a slough, and consequent secondary hemorrhage, though the clot formed by them is not soluble in any constituent of the blood. Carbolic acid has been recommended, and tinct. of capsicum has been used recently with asserted success.

Of the remedies which act mechanically, lycoperdon, or puff-ball, matico, resin in powder, burnt cork, spider's web, etc. are familiar examples.

Nitrate of silver is sometimes used, in the solid form, as an application to the socket; but the clot which it forms is soluble in an excess of albumen, and there is the liability of slough and subsequent hemorrhage.

The actual cautery is sometimes employed, and acts both by coagulating the blood and causing contractility of the tissues.

Various methods have been suggested for the employment of pressure to close the mouths of the bleeding vessels: with teeth having but one root, the application of a styptic and the reinsertion of the tooth; the filling of the socket after the employment of an astringent with plaster of Paris mixed with water, or in powder, and allowing it to absorb moisture enough to cause it to set; the application of a small pellet, containing a styptic in powder or solution, and subsequently filling the space with cotton saturated with sandarac varnish. Compresses of wood or cork, held in place by the opposing teeth, assisted by bandaging the jaw, have also been employed successfully. In cases where the hemorrhage is capillary, a saddle made of cork, with a V-shaped slot cut in it, so that it will contract or clamp the margins of the socket, has been found very efficient. The most efficient saddle for the purpose is one made of gutta-percha, formed while in a plastic state to fit the space,—subsequently removed and contracted somewhat by pressure, then cooled and sprung over the parts. This method is easy of application, and, especially where there are adjoining teeth, the most complete of any plan yet suggested for making uniform pressure.

To quiet the action of the heart, veratrum viride, aconite, and digitalis are among the most potent remedies, but must be used with caution, and their effects carefully watched.

As the effect of fear or anxiety is to cause an undue action of the heart, it is very desirable to quiet apprehension, and promote a tranquil state of the nervous system. It is therefore essential to produce a favorable mental impression on the patient, which will be found in many cases to lessen the force and frequency of the heart's action very sensibly. If other influences in this direction are indicated, the agents will be found among the antispasmodics, of which valerian and camphor are good examples.

To correct abnormal conditions of the blood, as in scorbutis, citric acid, lemon-juice, and the tincture of the muriate of iron, are indicated.

To promote contractility of the blood-vessels, acetate of lead, dilute sulphuric or aromatic sulphuric acid, gallic acid, ergot, erigeron, and turpentine are of the class from which benefit may be anticipated.

It has been claimed recently that the hypodermic injection of ergotine exercises a controlling influence in hemorrhages.

In extreme cases, to divert the circulation to other parts of the body, hot foot-baths, or mustard cataplasms to the extremities, may be resorted to, or ligatures around the limbs, to prevent the return of venous blood until local and systemic remedies have controlled the hemorrhagic tendency.

A considerable range of treatment is here indicated, allowing of judicious selection of remedies and appliances by the operator according to the character of the hemorrhage and the condition of the patient. Of course the simplest measures are, in the great majority of cases, amply sufficient.

Of the various vegetable astringents, tannin is, perhaps, the most efficient, and has the advantage of forming a clot which is insoluble in any of the constituents of the blood. The best method of applying it is in powder on small pieces of lint, packed, one after the other, into the socket. An admirable application is styptic celloid,—a saturated solution of tannin and gun-cotton in ether. Of the mineral astringents, alum, either in powder or saturate solution, will control most cases of venous or capillary hemorrhage. In severe cases, nitric acid seems to be less objectionable than the preparations of iron or the lunar caustic, because less liable to cause slough and the secondary hemorrhage which follows. Tannin or alum, with pressure by the gutta-percha saddle, will almost surely check any alveolar hemorrhage, except that caused by an open artery, and will frequently control that. These failing, the actual cautery promises the promptest relief.

## HINTS AND QUERIES.

ATTENTION is again invited to this department of the DENTAL COSMOS. It will be seen that already there are encouraging indications that the opportunity thus afforded of soliciting information is appreciated. The responses will be looked for with interest.

Let all who desire information on any subject connected with dental practice put their query into the briefest possible space, in the hope, which we believe will be realized, that some one will be able and willing to impart the desired knowledge.

We earnestly entreat those who have positive convictions in reference to the subjects embraced in the queries, to contribute toward the enlightenment of the querist, and to all who are in want of the same information.

For this department, especially, *terseness* is desired in both question and answer.

Querists and respondents may write either over their own signatures, initials, or an arbitrary letter, as they may prefer.

## FIRE AND LOSS OF LIFE CAUSED BY RHIGOLENE.

On Saturday, December 30th, the business premises of Mr. Frederick Stearns, wholesale druggist, Detroit, Mich., were burned, and four of his valued employés perished in the flames. Mr. Stearns writes: "The fire was caused by the accidental breakage of some bottles of rhigolene just received from Boston, and which were being carried to a vault for storage. The vapor of the fluid ignited from a burning gas-jet near by, and in less than twenty seconds the whole building was on fire."

# BIBLIOGRAPHICAL.

Treatment and Prevention of Decay of the Teeth. A Practical and Popular Treatise. By Robert Arthur, M.D., D.D.S. J. B. Lippincott & Co., Phila. 12mo. pp. 256. 1871.

This book is an ample and clear statement of a definite method for limiting decay of the teeth. It is professedly addressed to the popular mind, that whenever opportunity offers, or occasion requires, the people may be supplied with definite information upon the subject of which he treats; it is also intended as well for professional reading, and for this purpose, while it may not be so satisfactory to the advanced practitioner, its simple language qualifies it to be clearly understood by the novice.

Dr. Arthur has, as he states, the additional object in view of furnishing to those who may put in practice his views, a means of answering the objections which may be urged against them.

For ten years he has been pursuing the system laid down in this little book, and has in this period been gathering the facts which have established his convictions of the correctness of the conclusions to which his experience has led him.

He commences with a concise and plain description of the teeth, with a statement of the general causes and principles influencing and qualifying caries of these structures, and clearly shows from his own experience, as well as that of others, that the most striking fact which constantly manifests itself is, that the teeth of a very large majority of persons—it might be said nearly all—are determined to decay upon their proximal surfaces, and this too from the action of general causes of caries, independent of structural lesions.

He found himself, he observed others, he well knows all practitioners of our specialty are, constantly occupied with the performance of difficult, tedious, and expensive operations on the proximal surfaces of the teeth, and these questions forced themselves upon him: Is there no means of arresting this disease before it advances to a stage to require all this excessive and painful effort? If we can stop this disease after it has eaten away a fourth or more of the organ, have we not been derelict in allowing it to advance beyond a beginning? And as we undoubtedly have it in our power to stop, in its inception, an attack of caries upon any proximal surface, why, in cases where we can, by the guidance of certain indications, clearly anticipate it, should we not be capable of altogether preventing its occurrence?

The solution of the problem was to separate the teeth from their fellows in a certain and peculiar manner. This operation is not to be confounded with the old-time mode of filing the teeth, which, on account of the crude manner in which it was usually done, was often followed by fruitless and disastrous results. But his method, in its inception, sprang from that strong common sense which underlay the old practice, and which has frequently suggested itself as the simplest remedy for incipient caries. There are various reasons why this plan was not long ago more fully developed, which this is not the place to explain.

But Dr. Arthur goes a step further; he has shown that caries on proximal surfaces of the teeth is a foregone conclusion from the conditions which are almost universally present in the mouths of youthful persons; and where the evidences of the existence of exciting causes of caries, combined with insufficient denseness of structure, are present, he performs for the prevention of caries exactly what he would have to do, in a few months at furthest, for the removal of incipient disease if he simply sat and watched over the case. The teeth of such persons are in jeopardy from the day of complete eruption.

The conduct of those who under such conditions wait for cavities to form, may not be inaptly compared to the physician who would withhold his remedies in the first stages of disease that he might have the satisfaction of curing when signs of danger might be apparent.

It must not be supposed, however, that an indiscriminate separation of the teeth is recommended. There must be a concurrence of exciting and predisposing causes.

The guiding principles may be summed up in a few words: *That if there is caries of the deciduous teeth, softening of the mesial surface of the first permanent molar is to be expected, even before complete formation. That as soon as any of the permanent teeth are in place beside the temporary ones, there is danger, unless isolation, more or less complete, is effected. That when proximal caries has commenced at one part, the same causes are in operation everywhere; and as the conditions are similar at all the points of contact, the results must be identical unless arrested by the means proposed. And that it is precarious to delay attention until softening has become apparent to sight or to the touch.*

The bulk of the book is composed of a description of the systematic method pursued for the prevention of decay. Each pair of the permanent teeth is dealt with in the order of their eruption,—commencing with the attention the first molar is to receive, and so on, until all of the permanent teeth are in their places. No one can read this portion without an admiration for the orderly method of the system followed.

Of the other well-known predisposing causes of caries, softness of structure, fissures of the enamel, and contact, Dr. A. deals principally with the latter. This relation of the teeth to each other has been too little considered as a predisposing cause. As it is an orderly arrangement of nature, it has not been sufficiently thought of as a cause of disease. It may be seriously considered, at this point, in what sense the part of contact between the teeth—two molars for instance—is different from the two sides of a fissure? When the enamel is not dense but continuous, philosophically viewed, there is no difference. The broad surfaces retain between them, with but little movement, the acidulous secretions of the mouth; they hold the results of the transformations of sedimentary accumulations and the *dêbris*. They present in other words, conditions favorable for the action of the exciting causes of caries. For these reasons, contact may be more favorable to the action of acidulous products than the sulci of the enamel on the masticating faces, where the fissures are unaccompanied by deficiencies of the dentine. In the sulcus there is less opportunity for lodgments, and the contents are being continually exchanged; whereas the proximal surfaces are more retentive from the first; and when the caries has progressed to an appreciable degree, it proceeds with greater rapidity.

The remedy given for these conditions, when present, is, such a separation of the teeth in contact, and such a presentation of their proximal faces to each other, as nature would probably have accomplished if the primary object in view had been to restrict or prevent their destruction by decomposing agents. All the surfaces should then have been protected, as the labial and lingual ones are, by free exposure to attrition, and in a constantly active movement of the fluids which bathe them. Would they not have been apart at all points, except, at most, a small portion? Slight thought will lead to the conclusion that function was the end in view in the form of the teeth, and enamel was given to furnish the requisite hardness to enable the office of mastication to be accomplished. In viewing the plan of creation, may we not entertain the principle that all organized structures are presumed to assume a state of integrity, and that no provision is made to meet the possible occurrence of disease, which is the evil fruit of some transgression? While it is true that some less diseased condition is set up as a resistance, it is still left to man to counteract, as best he may, and with what wisdom may be attained by him, the disturbances of the balance of organized life.

The conclusive summary of the results of Dr. Arthur's treatment may be briefly stated to be *the exclusion, as far as is attainable, of one of the predisposing causes of caries, viz., contact*, and a diminution of the opportunities for the action of exciting causes, by preventing the continued retention of *débris*.

Dr. Arthur, in this treatise, also meets and answers the objections which may be made to the plan recommended; to which attention should be given. During the several years this mode of treatment has been before the profession, Dr. A. has repeatedly invited discussion upon this subject by those who have, in a general way, questioned his conclusions; but no one has, thus far, in a full and serious manner, given him the opportunity to make a proper defense of the plan proposed.

It may be regretted by some that he has, at various parts, taken occasion to condemn practices which are more or less general, some of which are reprehensible; but what shall correct the practices of those who are unfaithful, and who may have the protective cloak of popular favor, unless the people are supplied with such light as will enable them to discriminate between those who fail to have a correct valuation of the priceless organs under their care and those who have a full appreciation of their office in life; between those who simply work for hire and those who have, as an end, the best conditions of the structures submitted to them?

Attention should be called to the chapter on the first permanent molars. There, as never before has been presented in print, is the strongest and best argument for the preservation of this class of the teeth.

Dr. Arthur has a strong claim to the attentive consideration of any views he may present. Need it be mentioned that he has long been recognized as a leading man in his profession, or that he has, on several occasions, made steps forward which have largely assisted in moulding the practice of his art? He is one of its most conscientious and progressive disciples; but, what is of more weight, he, at all times and under all conditions, never fails to keep in his mind as an animating end the highest preservation of the teeth. Surely his words will not return to him without having received that consideration to which, from the importance of the subject, they are entitled. L. J.

# PERISCOPE.

## SELECTIONS AND ABSTRACTS FROM DENTAL AND MEDICAL JOURNALS.

The Conditions of Professional Success.—Let no conceit of scientific dignity or educated refinement obscure the fact that the professional man is simply a working man, bound to the ordinances of all labor, whether it is wrought in sweat of the brow or sweat of the brain. * * *

The conditions of professional success are the conditions of success in all good and lawful work. * * *

The searching analysis of our time claims all things as existing under *Law*,—mental aptitudes and moral motives, no less than the circulation of the blood, or the movement of the tides. Inside the world-wide ordinance of labor—the comprehensiveness and blessedness of which prove it to be a divine ordinance—the operation of law is indicated in human pursuits.

In the first place, there is the law of *Fitness*,—the fitness of men for different kinds of work. No analogy holds out more persistently than the commonplace one of society and the human body. Thus some men are limbs and others are organs. There are those whose specialty is *Executive*. The world cannot afford to spare them, any more than you or I can afford to spare our fingers or our arms. Here, again, is a class whose distinctive office is to *think* and to *speak* They are ongues and brains, although, sometimes, the tongues and the brains get separated. And, still again, this corporate humanity has its *Eyes*,—men whose function it is to *look*,—the Investigators, the Discoverers, who, in Nature and throughout the realm of truth, *see* more than you or I can see. Now, this diversity of operations appears to be the result of a fixed purpose. Faculties for special kinds of work are congenital. Gifts blossom from the blood. Some men have their calling forecast in the sockets of their eyeballs and the bulging of their thumbs. This is in opposition to the doctrine that men may become what they will, which, perhaps, is true, in the sense that men *will* to become what they *do* become. But aptitudes, powers, the will—which is a sign and prophecy of the power—are not wrought by education, and have no artificial birth. It is not true that "the poet is born and the orator becomes," except in the sense that any other man who fills his place, and does his work successfully, is born, or becomes. Every man cannot be a mechanic, any more than every man can be a musician; and the faculty of laying the keel of a ship is as divine as the faculty of creating an Iliad. * * *

Nevertheless, let nobody cherish a morbid distrust. Let no man carry to excess the notion that he is out of his place. You will not do well if you are haunted by the notion that somewhere else you might do better. After all, there is a faculty of *adaptedness* which traverses this law of personal fitness. Second nature grows close to first nature. Human elasticity is marvelous. Even the most unhandy man is a sort of Robinson Crusoe. Plant him on a desolate island and he would sprout into a twenty-bladed penknife. I have only been arguing for a wise choice in the beginning. Having chosen your pursuit, and set your face towards its purposes, stick to it, and do not be troubled with the conceit of "high work" or "low work." Do not despise professional drudgery. All useful work is good work, and in it there is no such distinction as "high" or "low;" except in moral qualities, there is no such distinction in the universe. On the scale of God's infinity, what becomes of your "high" and "low?" There is no aristocracy in nature. It is hard to say what thing there is most regal or most glorious. At least, concerning anything we may say, that the measure of its rule is the measure of its service. * * *

The next law of work to which I call your attention is the law of *Balance.* * * *

The Law of Balance requires due proportion between the faculties of thought and execution. This statement resolves itself into a very trite proposition. There is no good thought that will not stand the test of work. There is no good work without thought. Now, a common violation of this law is indicated by one word—"speculation." Some men's brains are nothing but scheme-factories, from which new projects are perpetually emerging, like flowers and confectionery out of a conjuror's hat—theories and methods, that have no more ground in reality than Aladdin's lamp. There is almost always one thing, and only one thing, that a man can do well. After all, people of one idea are not to be sneered at. It requires much diligence and some brains to take care of one solid idea; and if he who is so fortunate as to have one persistently carries it out, it may become a reputation, or a fortune, or an institution. But if he goes on speculating and experimenting in twenty different ways, we shall probably see twenty fizzles, for the crown of all faculties—I had almost said the crown of all virtues—is common sense, and common sense holds everything close to execution.

On the other hand, there is no good work without thought. But how much labor, professional and otherwise, is merely automatic,—a routine of the muscles, a tread-mill of the mind, into which there break no inspirations? In almost all pursuits you will find a class of men who call themselves "practical people," and who are just the most impracticable people on the face of the globe. These, carrying to excess the principle of which I have just been speaking, distrust all experiments. And there they stand, screwed into the forked end of old prejudices and old customs, seeing just what they always have seen, and doing just what they always have done, and so opposed to stepping forward, that were it not for the law of gravitation, the earth, as it moves through its orbit, would be twitched from under their feet, and leave them sticking in blank space.

Life should not be blown off in mere speculation; but it is equally true that theory marches in the van of progress. Hypothesis precedes discovery. Men throw a slim kite-string across Niagara River. This is only a venture,—a speculative conjecture. But by-and-by there swings a solid structure, the transit-path of traffic, and a highway for nations. All branches of human pursuit are amenable to better methods, and should be continually ventilated by fresh suggestions. In any case, a man should not be shut up in his work, but he should stand outside of it, and hold it within his thought. That is a miserable business which, while it fills his mouth, starves his brains. The value of any performance is determined by the proportion in which it is suffused with the worker's personality, and vibrates with his own mind. There must, then, be a fair balance between Thought and Execution. * *

I will detain you with the consideration of only one other law of work as a condition of professional success, and that is the law of *Just Measure.* I do not refer now to the ethics of work, although I assume the moral law as the basis of all I may say, as one assumes the atmosphere when he talks of sound. I assume that there is no pursuit in which one can afford to do without a conscience, any more than he can do without brains or instruments. But what I wish to say concerning just measure applies not so much to the ordinary morality of human transactions as to what one should give for what he expects to receive. As there is no royal road to knowledge, so is there no legitimate method of success except by submitting to the conditions of success. * *

It is obvious that this line of remark bears upon a great deal of the discomfort and discontent, the weariness and drudgery, which are incidental to professional life, especially in its earlier stages. The weariness which so many of the young and hopeful have experienced, and will continue to experience, until the end of time, the consciousness of fine powers blunted by grinding routine; of ability kept down; of skill acquired by years of patient study unappreciated; of services grudgingly repaid; the conviction that one must thus work on in obscurity; these excite the bitter and irritating feeling that the just measure of work has not received its just measure of reward. But, after all, the true reward of work is in its intrinsic nature, and in its results. The useful work is demonstrated by its usefulness; the good work by its goodness. Moreover, he who performs such work never can feel that he is merely the conscript of ill fortune, but the willing servant of truth and deed. Faithful work is always *loving* work, wrought for the work's sake, in which fame and fortune are only secondary motives: not mere bread-and-butter work,—not mere perfunctory work,—but work of the fruitful brain and skillful hand, following the dictates of the whole soul and of the heart.

And the evils which discontent with the conditions of legitimate work may engender, are equally apparent. Impatient at the slow income of legitimate success, there are some who seek to accelerate it by unjust measure, by unscrupulous ingenuity and spurious methods. Hence the vast system of quackery which, I hardly need say, is by no means confined to the area of one profession. The political, the financial, the moral world, swarms with pills, and extracts, and all sorts of nostrums bearing that infallible stamp of quackery. One remedy warranted to cure all sorts of disease,—ring-worms and leprosy, vice and poverty, chronic lying and the national debt. These are the fertile expedients of those who are not content to abide by the law of just measure, who are more solicitous to get than to give, or who substitute *quantity* for *quality.* In this way such men may succeed, according to the worldly and metallic standard of success, but not according to the genuine standard. Rickety work of any kind will not stand: the veneering cracks, and the whitewash peels off, and the flaw comes out in the unsound timber, and the bad needles break at the point and "cut in the eye." The genuine articles secure the surest sale. The greenest customer, in a little while, finds out that the best things are the cheapest. The knowledge may not come soon enough to prevent fraud, and Dishonesty may line its pockets with gold, but the knowledge *does* come; and even if it does not, the deceiver is conscious of his deceit, and even the mean man knows *almost* how mean he really is. * * *

But the work of just measure, the work faithfully wrought in love, though only the commonest kind of work,—the work done in loyalty to duty, and gallantly at one's post—the work of help and relief,—never really loses its power, and has a sure reward. * * *

In some way, all good work is felt among men. It has added to human well-being and progress. It stands in solid results, or circulates as moral force. It spreads in the widening ring of influences. It has helped to make men better, and it has made better those who wrought it. Such is the law, and such is the blessing of Just Measure. * *

Let no one think, then, that in assuming a professional career he occupies a position of more intrinsic dignity and nobleness than those who engage in some other kind of work. The demonstration of this must be practical. The patent of nobility is unfolded in the career itself. Its superiority to other pursuits is proved by the greater intensity of its intellectual activity, by its proportion of liberalizing thought, by its larger measure of truth, and especially by the character of its motives and its ends, by the emphasis which it gives to moral obligations, and by the help which it communicates to mankind. * * *

So to you now before me, who are girded for and going forth to this battle, this life-work, I reiterate, in the first place, this very fact, that your professional career is, and must be, in some respects, a *battle.* You must not expect to secure immediate ease, or fame, or fortune; on the contrary, you are entering into a field of active competition; you will meet with many obstacles; you must count upon deprivations, disappointments, discouragements,—upon a struggle that may be long and hard; and remember that your professional success, whenever and however it may be achieved, if it be genuine success, will depend upon the *Laws* of all good work. * * *

The nobleness of your work is in its usefulness. It is a work of help and of healing. You go forth to contend with a host of ills, to confer priceless benefits, to lessen the dreary mass of human misery. To do this work faithfully and well is your real success. To *know* that you have done this is, above all others, your genuine reward.—*Rev. Dr. E. H. Chapin, to the graduating class of Bellevue Hospital Medical College.*

PATHOLOGICAL CONDITION OF THE DENTAL PULP.—What are the probabilities of saving a portion of tooth pulp in a healthy condition, after a portion had sloughed from exposure by decay, and at what point in the pulp-chamber would be the most likely to be successful?

I have often witnessed in cases of exposure and partial sloughing after extracting the tooth, that a portion of the pulp included in the fang opens up a certain distance, sometimes nearly the entire length of the fang; that the pulp presented a normal appearance, only slight fullness in the vessels, the sloughing portion being somewhat decomposed with the usual smell; on splitting open the tooth sometimes pus is present.

In many cases of this kind there is scarcely any pain or soreness, the alveolus and membrane normal, more especially in single fang teeth. In such cases, is there not an indication that nature is making a saving or conservative effort to retain a portion of such pulp from total annihilation? If so, is not an attempt on the part of the dentist, to save not only the tooth but a portion of the nerve also, in a healthy condition, proper?

We often find great tenacity to life in this remaining portion of nerve, even after arsenic has been used with partial success, so much so that no subsequent application succeeds in total destruction of the remaining portion. I have often noticed that in such cases, also in spontaneous partial sloughing, that the point diseased was just about the point where the tubuli leave the pulp canal, and terminate at the margin of the enamel, at the junction of cement or about on a line with the alveolus or a little lower.

This fact in itself indicates clearly to my mind the point where we might attempt to save the remaining portion of pulp, owing to the fact that all tubular nerve fibrils below that point ramify through the cement to the periostenum, thereby giving them greater vitality to life than those terminating in the crown, at the more mineral or less vital tissue, the enamel.

There are many cases of decay where exposure of pulp from any cause produces no pain or uneasiness whatever, even where a larger number of pulps are exposed at the same time, and undergo slow and gradual devitalization without any actual sloughing, instead of a drying up and gradual loss of sensibility. In such cases I have noticed a normal condition of the fang portion of remaining pulp—no signs of inflammation or sloughing. Again, on the other hand, and that in a majority of cases, we find inflammation accompanied with pain, followed by sloughing, frequently baffling all attempts to relieve, necessitating extraction sooner or later, or killing of pulp outright, with small assurance of permanent success. In cases of the former variety, we are fully justified in attempting to save such exposed pulps, or even where there is a portion of pulp gone by slow decay, or as Liebig might call it, *eremacosis*. I but recently filled such teeth with os-artificiel with promise of success. Carbolic acid, styptic colloid, tannin, and creasote and many other medicaments may be of service before filling. How long such pulps may live, or what per cent. of them ossify, we have no definite data to decide the point. Sometimes the bulbous portions of the pulp may be sloughed away and down the fang to midway, and there make a stand, as it were, in the "last ditch," for dear life, for an indefinite time, sustained and backed by other agencies, such as the hypertrophied or thickened cement up to that point, and then stopping abruptly, continue to grow or thicken so long as the nerve continues to live—at least so long as there is vitality remaining in the pulp within the dentine. At the same time the dentine is undergoing changes, the canal narrowing, the tubuli also narrowing, which in effect narrows down vitality to a certain extent; as there is less need for the usual amount of vitality, the area of nervo-hemal is diminished; hence Nature here proportions her necessities to the new condition of things, never being prodigal with means or ends.

When a tooth, as above described, remains open and exposed to the irritating influences of oral secretions, the cemental and dental changes must necessarily be aggravated and carried too far, or to a point beyond conservative limits, and total loss demanded; but where the last stand is made and timely aid arrives, the tooth may be saved for an indefinite time, and made serviceable and companionable to the possessor. There is established a dead line in the dentine at the point spoken of—not absolutely so in the cement above this line, as there must be some slight amount of vitality remaining, the dead line being confined to the dentine at the union of cement or thereabouts. One feature I will notice in the process under discussion is this: that when a nerve in a tooth is destroyed wholly or in part, afterward there is no growth of cement at all above the point where vitality in the pulp has been destroyed; but such may be the case up to the point of neural vitality in the fang, this growth being the effect of irritation in the alveolus and fang, weakening vital resistance to lime encroachments surrounding the fang.

In this process, new improvised germinal matter, as Mr. Beale calls it, is improvised in the periosteum, and then subsequent ossification of these cells of germinal matter or colloid matrix takes place. Now, I am only theorizing from want of positive knowledge, and instead of any new cells improvised which are to undergo subsequent ossification, the periosteal cells may take on ossification *per se*, and in consequence of weakened vitality, thereby yield to ossific degeneration, which is a downward process toward the mineral world, from whence all organisms originate. In the first place, a thickening of the inter-alveolar membrane takes place, with more or less loosening of the tooth in many cases.

Now, as the cement ossifies, the inner walls of the alveolus must be carried away to make room for the encroaching growth of cement. This is what is usually called absorption of the bone—which is actually the case, but the question is, how does this absorption take place? as the agencies that break up bone and cause bone absorption would theoretically prevent the growth of cement, still, facts are facts, and cannot be ignored. In the above process one side of the membrane forms semi-bone, and the other surface of this membrane must generate an acid of sufficient energy to decompose at least one equivalent of the lime of the tubasic phosphate of lime, leaving only a biphosphate, which is an acid or superphosphate which is a soluble salt of lime, and is now wholly disorganized and easily removed. The carbonate also being amenable to this acid action, which readily disposes of the earthy matter, the pressure of the encroaching cement causes absorption of the osteine or cartilage, by the usual process of oxidation. Oxidation is incompetent to remove the earthy elements of bone, as that is already oxidized before it becomes a phosphate and carbonate, and cannot take up or hold any more oxygen, the calcium being completely saturated with it. After the entire nerve is dead and gone from the entire pulp canal, on cutting out the canal with an excavator some slight sensibility, as a general thing, is felt at a certain point only, especially where the dentine is exceedingly thin. I operated but the other day on just such a case, where spontaneous death of the entire pulp had taken place some time previous. We often, in drilling pivot holes in fangs for pivot teeth, find some sensibility when one drills so as to closely encroach upon the cement. I am more convinced of these facts now than formerly.

Now, the tide in the affairs of teeth, with only a fang portion of pulp left alive, turns, in my cordial opinion, upon the fact whether or not this remaining portion takes on secondary ossification. If so, all may go well if not too much hurried. When this process fails, the probability is that in most cases death ensues no matter what method is pursued. We have not facts enough before us to predicate a per centum, but I here beg leave again to ask, are not the facts already before us sufficient to justify us, under favorable circumstances, to attempt to save such pulp alive in preference to any other course? I certainly hear an echo saying yes.

I will not pretend to advise any particular method how to treat or fill even in such cases,—only give my favorite method: I prefer as an immediate covering over the pulp after proper treatment, gutta-percha dissolved in chloroform, as it readily settles down over the pulp without any pressure or irritation, and readily evaporates, leaving a layer of any desirable thickness over the tissue. I have sometimes used os-artificiel, but this is more of a chemical agent than I like just here, and may be added after the gutta-percha, and then anything else the operator may prefer. I have had some experience in this direction and some success, though not extensive. We need more post-mortem dental data on the subject.—*Dr. S. P. Cutler, Am. Jour. of Dental Science.*

The Man with the Iron Jaw.—Gentlemen: Mons. D'Atalie, or, as he is commonly known, "The Man with the Iron Jaw," has kindly presented himself at our clinic this morning, in order that you may have the opportunity of making a careful examination of his maxillary apparatus. Some of you may have witnessed his feats of strength—all of you have no doubt heard of them—and have naturally felt a desire to ascertain wherein lies his power, and to examine the degree of development of the parts concerned. In questioning him in regard to the history of this manifestation of power residing in the jaws, he stated that it had been developed during the past three years. From early life he has been engaged in a gymnasium, and has had the opportunity of developing, in a high degree, his muscular system. His first effort to raise weights, grasped by his teeth, was made three years ago, when he made an attempt to lift a heavy table. This effort was successful, and he increased the weight until, as he states, he is able to raise seven hundred pounds. Some time since, in attempting to lift a very heavy weight, he dislocated the incisor teeth of the upper jaw; they were immediately replaced, and are now, apparently, as firm in their positions as any of the teeth. Since this accident, however, he exercises more care in grasping weights, lest he should sustain permanent injury.

On examining the oral cavity, you will be struck with the condition of the teeth. You would expect to find a set of well-developed, strong, healthy teeth; on the contrary, you will observe that they appear atrophied; they are smaller than those found in men of his size and form of development; the crowns are worn away, a number of them are carious, and they differ altogether from your preconceived idea of their character. Passing to an examination of the inferior maxilla, you will observe that the bone is small, the curve of the horizontal portion or body is wide, and the angles are rather prominent. The angle at which the rami are attached to the body appears to be somewhat less than a right angle. The external oblique line is very strongly marked, and can be distinctly traced to the base of the mental process. The rami are not very broad, and the edges are not very thick. From this examination you will conclude that the bone does not possess any extraordinary development; in fact, it is not as strongly developed as you would think necessary to enable him to use it as he does. The superior maxillæ appear to be normal in their development. The temporal and masseter muscles are not developed beyond the normal size; when they are called into action they are very firm and hard, otherwise there is nothing in their condition worthy of special note. After this careful examination, you will be impressed with the fact that his maxillary apparatus does not present any extraordinary development, either in the dental organs, the bone or the muscles, as far as we are able to examine them. On the contrary, there seems to be an absence of any very full development of the various parts which enter into its formation. Notwithstanding, however, the condition of the parts, he has given repeated evidence of being able to sustain very heavy weights which are grasped by the teeth. Let us endeavor to explain how he accomplishes it.

Observe his movements as he lifts this chair. You will see that he places himself firmly on the floor, separates his feet, putting one in advance of the other, and calling into action the muscles of the lower extremities, as well as those which connect the trunk with the lower extremities. He grasps the back of the chair so as to bring it well between the molar teeth; he lifts it by extending his body and head, thus throwing his chest forward. Two forces are employed in this act: 1. That which enables him to hold the chair. 2. That which enables him to lift it. The first is derived from the action of the elevator muscles of the lower jaw; the second, from the posterior muscles of the neck and trunk.

When you examine the maxillary apparatus, you find that it consists of the two superior and the inferior maxillæ; the two superior being fixed and immovable, forming, as it were, one bone, while the inferior is very movable, and in the various movements incident to articulation and mastication, plays against the superior with freedom and great force; it is securely fastened in its articulation with the temporal bone by ligaments. There are attached to the lower border of the body of the bone certain muscles, which act as depressors, and which, when called into action, open the mouth. The elevator muscles are larger and stronger than the depressors, and consist of the temporal, masseter, and internal pterygoid: the former is inserted into the coronoid process, and the two latter are inserted into the angle of the jaw, the masseter externally, and the internal pterygoid internally. The direction of the fibres of these muscles, and their points of insertion, explain their actions in raising the lower jaw against the upper. At the points where the lower is brought with greatest force against the upper jaw, you will observe that the upper jaw is braced and strengthened by two strong columns, which pass down from the external angular processes of the frontal bone, through the malar bones, terminating in the malar processes of the superior maxillary bone above the molar teeth. Between the molar teeth the greatest force is exerted, and all of the elevator muscles of the jaw are brought into action when they are employed. When, on the other hand, the anterior teeth are alone employed, the temporal muscle is not called into action. Hyrtle, the distinguished German anatomist, estimates the force exerted by the elevator muscles of the lower jaw, in crushing a nut, to be equal to four hundred pounds.

This will give you some idea of the immense power which these muscles are enabled to exert, and will explain the way in which the acts of strength are accomplished by one who is trained. In order to accomplish them it is necessary that the other muscles of the body should be well developed and in a trained condition. In lifting heavy weights, Mons. D'Atalie holds them by placing the part seized between both the anterior and posterior teeth, so as to employ all the elevators of the jaw. Having grasped them firmly, he is enabled to lift them by calling into action the muscles of the neck and body, which, by long training in the gymnasium, he has placed in a state of high development. His power, therefore, does not reside alone in the muscles of the jaw—those of the body play an equally important part in all of his feats of strength. —*Prof. Mears's Clinic, Penn. College of Dental Surgery, in Dental Times.*

Unsuspected Alveolar Abscess.—Patient, aged forty-two years, in good health; teeth yellowish, tolerably hard, but a little inclined to be brittle. Have had the mouth under treatment about three weeks. Found the lingual surfaces of the inferior incisors and canines coated with salivary calculus, gums absorbed and presenting, as is usual in such cases, a red, inflamed margin where it comes in contact with the accumulated tartar. The left inferior second bicuspid and first molar wanting, and superior left first bicuspid likewise. The right superior left canine had been filled on distal surface. The cavity was large, and upon touching the filling with an excavator, the gold fell out, revealing the pulp cavity open. The patient stated that she had noticed a disagreeable taste, for two years, in the vicinity of the tooth, and I had no doubt but that it proceeded from the canine. The inferior left second molar had a large cavity, involving the mesial surface, and extending through to the grinding surface; and placing an excavator upon the margin of the gold, it fell into a cavity between the filling and the lateral wall of the cavity. The surface of the filling appeared more like the surface of a grater than like a properly formed gold filling. With my excavator, I turned out the filling, and found the dentine softened and decaying over a great part of the walls of the cavity. Five or six other cavities were found in a similar condition. The tartar was carefully removed from the teeth, and the gums slightly touched with tincture of iodine, care being taken not to introduce a large quantity at a time, as it spreads rapidly, and covers parts where it is not needed. The canine was treated with creasote for some ten days; the root having been carefully cleaned out, the pulp cavity and crown cavity were filled with gold. A few days after filling the bicuspid, the lady called again, and still insisted that she tasted something escaping from the tooth which had been filled. A closer examination revealed a cavity in the lateral incisor distal surface, which had hitherto been completely masked by the close proximity of the canine. Upon separating the lateral incisor and canine, and passing a broach into the cavity, it was found that the pulp canal was open, and a large amount of pus flowed freely from it. I had before observed that the alveolar process, upon that side, was considerably thicker than the other, and that there seemed to be a little sponginess of the gums and mucous membrane, for a considerable distance around. The cavity of the abscess must have been large, as nearly a teaspoonful of pus escaped at one time. There was no soreness, no external fistula, and the tooth had given no pain, at any time, as I could learn. Creasote and tincture of iodine were forced into the cavity, as far as possible, and after a few applications, the discharge decreased, and finally stopped. The hole was then filled with gold, and the "bad taste in the mouth" has disappeared. This abscess had existed for several years, and as a consequence of the continued irritation of the parts, there had been produced hypertrophy of the periosteum and mucous membrane, for a space extending at least an inch long and half or three-quarters of an inch broad upon both sides of the process, and, perhaps, a thickening of the process itself. Painting the parts two or three times a week with a strong tincture of iodine, will probably reduce the thickness of the parts, to some extent; but the thick, clumsy appearance of the alveolar process will probably not entirely disappear.—*Dr. Judd, Mo. Dental Journal.*

ABNORMAL DENTITION.—S. B., a young lady, aged nineteen, of delicate constitution, but who enjoys moderately good health, came under my notice in May to consult me about a troublesome tooth. In the course of conversation she informed me that, with the exceptions of a lower lateral incisor and canine, the milk teeth never showed themselves.

Both of these appeared at the age of five; the permanent teeth came forward at the usual time in regular succession until dentition was completed, including even the wisdom teeth, which came with or followed the others, without an interval, the patient's impression being that she has not cut any teeth for at least six years.

The process and conditions of dentition in this case, so far as I can gather, do not call for special remark. There was no particular manifestation of difficulty in mastication before teething took place, no impediment in articulation or want of vocal ability, and I may say dentition was completed under unusually favorable circumstances, the teeth being fine, large, well developed, and the enamel quite perfect.

The peculiarities of the case are, firstly, the all but entire absence of milk teeth; and secondly, the eruption of the wisdom teeth so many years before the usual period.—*Dr. B. E. Mosely, Brit. Jour. of Dental Science.*

TINCTURE OF CAPSICUM AS A STYPTIC.—Among the multitude of known styptics used to stop excessive bleeding after tooth extraction, I am not aware if every dentist has tried the effect of two or three drops of tinctura capsici on wool, firmly pressed into the cavity; my experience goes to prove it the best remedy extant; one application generally answering the purpose.—*John Branson, Brit. Jour. of Dental Science.*

OBSERVATIONS ON RACHITIS.—The last physical sign to which attention will be directed in connection with the head is dentition. This is ordinarily retarded, and the simple fact that a child has reached his ninth month without dentition having commenced is enough to lead an intelligent physician to suspect commencing rachitis. Not only does dentition commence late and progress slowly, but the eruption of the teeth is attended with great pain, and they are irregular in time of appearance and position.

The extent to which dentition may be delayed varies much in different cases. It is no uncommon thing to meet with rickety children a year or eighteen months old in whom dentition has not commenced. The writer has met with a single instance of a rickety child in whom the primary teeth failed to make their appearance at all. The same was noticed by Van Swieten, for he says, "I have seen some youths, who had been negligently treated in the beginning of this disease, continue toothless during life."*

They appear with difficulty, and often with severe suffering, and are irregularly set in the jaws. This is owing to the imperfect development of the jaws, which, being smaller than in healthy children, do not afford sufficient room for the natural eruption of the teeth. To this cause may be ascribed many of those symptoms which authors so often attribute to dentition. In a healthy child this, which is a natural and physiological process, is unattended with any serious phenomena, and it is in these sickly and cachectic infants that the teeth appear painfully, slowly, or not at all. Moreover, the cachexia must be peculiar—in other words, rachitic—or this will not occur, for in cases of chronic diarrhœa and other wasting diseases of children the teeth appear at the usual time and in the usual manner. This is true, though the little patient may be emaciated to the last degree, while in rickets dentition is often much delayed and very difficult when the lesions connected with the long bones are but slight and the child presents the external evidences of moderate health.

The teeth themselves are imperfectly developed, deficient in enamel, decay in a very short time, and, as Glisson so truthfully remarks, "fall out by pieces." It is no rare thing to see one of these children almost toothless long before the permanent set should appear.—*Dr. John S. Parry, in Am. Jour. of Med. Sciences.*

NEUROTOMY. MAN, AGED FORTY.—Gentlemen, some of you remember this man. He came into my clinic last winter, suffering from atrocious facial neuralgia. All manner of therapeutic agencies had been tried in vain. His sufferings were absolutely unendurable. You recollect the operation which I then performed. I made a crescentic incision below and parallel to the inferior border of the orbit, from the inner to the outer canthus, and another from the middle of this, perpendicular to it, and running nearly to the vermilion border of the lip, without opening the buccal cavity. I then dissected up the flaps, and brought into view the superior maxillary nerve as it emerged from the infraorbital foramen. This I broke up as thoroughly as possible. I even dissected out the terminal fibrillæ as far as I could reach. This portion of the superior maxillary nerve presented an appearance not unlike the cauda equina of the spinal cord.

I then opened the antrum of Highmore with a large trephine, and with a strong scissors separated the superior maxillary nerve from its connection with the orbital plate of the superior maxillary bone. I next perforated the posterior wall of the antrum with a small trephine, and then chiseled out a perpendicular portion of bone above the opening made by the trephine. The posterior orbital portion of the superior maxillary nerve was thus permitted to drop down into the antrum, and the nerve was now accessible all the way from the foramen rotundum of the sphenoid through the spheno-maxillary fissure to its point of exit on the face. With a pair of curved scissors I reached in behind Meckel's ganglion and divided the nerve close to the foramen rotundum. On with-drawing the severed portion of the nerve-trunk, I found that a portion of the ganglion of Meckel was connected with it, though internal to the nerve. Finally I broke up the ganglion with a blunt instrument. This concluded the first operation; and the patient was immediately relieved from pain. There was little ground for hoping, however, that the cure would prove permanent. The operation which I have described has been performed several times, since its introduction by Dr. Carnochan, and, if the truth were known, I question whether a single case of permanent cure could be cited. I performed the operation on a lady from New Jersey a short time previous to my operation on this man, and as yet she has had no recurrence of pain in the region supplied by the superior maxillary, but she has been troubled with pain—slight, however—in the lower jaw.

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* Commentaries, etc., Edinburgh, 1776, vol. xvii. p. 385.

This patient enjoyed a few months of respite from suffering, and then came trouble in the lower jaw. A second operation was demanded. I trephined the inferior maxilla and exsected the nerve. Furthermore, I introduced a curved bistoury into the patient's mouth, flatwise, on my finger beneath the mucous membrane, engaged its point in the inferior dental foramen, and thoroughly broke up the nerve where it entered the bone. The patient was again entirely relieved for a time. But his happiness was very brief. In a few weeks he came back suffering as badly as ever; and the first operation ever performed in this badly-constructed, this disgracefully-contrived amphitheatre, was this poor fellow's third experience in neurotomy. This time I divided all the branches of the trifacial on both sides at their points of emergence about the face. On the left side I plunged a knife in at the point where I had removed the disk of bone from the wall of the antrum, and cut the nerve-twigs in every direction. I divided the nerves at the supraorbital, infraorbital, mental, and inferior dental foramina, on both sides, with a view to cutting off all the connections of nerves on opposite sides. He went away relieved from pain.

But here he is again, imploring me to operate for the fourth time. His pain is in the lower jaw, on the left side; so I pass my bistoury into his mouth and sever the nerve as it is about entering the inferior dental canal. I have already explained the operation to you. There! I ask him if he suffers any pain now, and you hear his answer, "No." You remark the changed expression of his face. From looking the most miserable of men, he now appears the happiest. This man has no dread of the knife; on the contrary, he holds it a luxury to be cut. ["Yes, I do!"] Now, gentlemen, explain this case to me. What ails this man? Who of you will be pioneers in this wilderness of neurotic affections? There are men who tell you that it is idle for you to look toward making original investigations that will be of any value to the profession. Do not believe them, gentlemen. Every new fact in science suggests a multitude of others yet to be established. I counsel you, then, apply yourselves with energy to the work of extending the boundaries of experimental knowledge, and rest assured that you will be successful exactly in proportion to the skill and fidelity with which you toil. Find out the facts relating to these neuroses. Tell us about tetanus; what is its pathology? Why is it indigenous, so to speak, in certain localities?—Suffolk County, L. I., for instance. I know a medical practitioner residing on the east end of Long Island, who chanced, while stepping about in his stockings, to run a brad into his foot. He knew too well how such injuries were wont to terminate in that region of country; so, almost speechless with terror, he sprang upon a horse and rode for his life out of the county. A railway train overtook him. He jumped on board and hurried to New York for surgical advice. I saw him at once; he had tetanus already—but it was hysterical tetanus! and he got well.

But tell me, some of you, What is the pathological distinction between hysterical, idiopathic, and traumatic tetanus? You don't know? and nobody can tell you? Well, then, go to work and find out for yourselves.—*Prof. Jas. R. Wood's Clinic, Bellevue Hospital, Med. Record.*

Lipoma simulating Ranula.—Mr. F. Churchill exhibited a specimen of lipoma simulating ranula. He said this tumor was removed from under the tongue of an old man, eighty-six years of age. The specimen is unique, so far as the Society is concerned. I have been unable to find in the *Transactions* any records of a lipomatous tumor removed from this situation, and there is no such tumor in the Museum of the College of Surgeons. Mr. Liston refers to the removal of fatty tumors under the tongue in his work on Practical Surgery. Mr. Pollock removed a fatty tumor from below the jaw of a lady forty years of age, enveloping the mylo-hyoid muscle; but in this case the intrinsic muscles of the tongue do not appear to have been encroached upon by the tumor. In several cases, hardened, putty-like masses have been removed from a ranular cyst, as also phosphatic concretions. During the last session of the Society, Mr. Waren Tay exhibited four or five butter-like masses, which he had removed from a ranular cyst, but "under the microscope no definite structure could be detected in them. Entangled in the substance comprising the masses were some cells, and portions of cells looking like *dêbris* of epithelium." Dr. Meymott Tidy, after a careful chemical analysis, "was disposed to regard the bulk of the deposit as adipose." The history of the case was as follows: H. T., aged eighty-six, was admitted to the Westminster General Dispensary, under the care of my colleague, Dr. Waite, who treated him for eczema rubrum of the leg. After consultation with Dr. Waite as to the nature of the tumor beneath the tongue, supposing it to be a ranula, I suggested that it should be removed in the usual way. He stated that on several occasions fluid had issued out from the tumor, after which it was distinctly smaller. The incisive teeth in the lower jaw were intact, and situated just behind these was a movable (apparently pedunculated) tumor, about the size of a walnut, covered by the smooth, glistening mucous membrane of the floor of the mouth. The tumor was also, in part, covered by the sublingual gland; it was soft and yielding, and I was under the impression that I could detect fluctuation. The distended mucous membrane was being chafed by contact with the sharp edge of the teeth during mastication. The old man had noticed the swelling for twenty-two years. It had gradually increased up to the present time. During the past twelve months, however, it had given him pain, in consequence of chafing against the teeth; he much feared that it was a cancer. From its size it had also interfered with mastication, and acted as a serious impediment to his speech. Having removed a portion of the anterior wall of the tumor, I proceeded to turn out the contents, but found, underlying the mucous membrane, a bright, glistening mass, resembling a cyst-wall; this was seized with a pair of clutch-forceps and drawn forward, a small portion of it being removed, but still no fluid escaped. I proceeded then to separate the adhesions to the mucous membrane with the spoon end of a director, but the deep connections were too firm to separate in this way; the finger also failed to enucleate the mass. The tumor was forcibly drawn forward, and these deep attachments cautiously divided with the knife. In this way the tumor, which was lobulated, and enveloping (probably) the genio-hyoglossi muscles, was removed. Exploring the cavity afterwards, I could feel the sharp borders of the vertical muscles, and I was satisfied that the growth had been entirely removed. There was very little hemorrhage after the operation, and the cavity had completely closed in the course of a week.—*Proceedings Pathological Society, Medical Times and Gazette.*

REMOVAL OF TUMOR FROM LOWER JAW. By Sir Wm. Fergusson, Bart.—Sir William stated that the tumor had commenced to grow from the gum about two years since; he thought that probably it was originally of a fibrous-cellular character, but that latterly it had degenerated a good deal. Had much increased in size, and as they now saw, occupied the mental space of the lower jaw. It was about the size of a hen's egg, and the skin covering had a red and unhealthy appearance. As soon as the patient was anæsthetized, Sir William commenced the operation by making a semilunar incision, which encircled the lower convex margin of the tumor, and the skin was then carefully dissected off the tumor from below and upwards. As soon as this stage was completed, Sir William, by a series of *dexterous surgical manœuvres*, enucleated the tumor, and then by means of a saw and bone-forceps removed a large portion of the lower jaw. The edges of the wound were then brought together, and dressed in the usual way.

Sir William was assisted by Mr. Henry Smith and the house-surgeon.

Sir William then stated that it was his practice, in cases of this kind, to endeavor to save some portion of the bone, the inner plate if possible—in fact, any part—and as a rule he was enabled to do so, as patients applied early, and there was not a great deal of disease of the bone. Here, however, a contrary state of things existed, which rendered it imperative on his part, though he was unwilling, to remove all the diseased bone, instead of making the operation, to a certain extent, a conservative one. Again, the class might have noticed that he had removed a portion of the skin; this was on account of the diseased tissue being so adherent to the healthy; nor did he consider that much unsightliness would result on account of the elasticity of the parts. Now, as regarded the operation itself, the class might have noticed that the facial artery, just at the point it divides, had been cut through, and bled very profusely. Many surgeons would tie this artery at once, or after the operation had been completed. He had done neither the one nor the other, as from long experience he was aware that in a very short time after the artery had been cut it would retract and give no further trouble. Now, as regarded this and other kindred operations for the removal of a *portion of the lower jaw*, the older school of surgery had, with much obstinacy and perversity, opposed such operations as being unsuccessful, by reason of the *whole jaw* not being removed. An experience of thirty-five years in operation for the removal of portions of the jaw, together with the success he had met, was, he was glad to say, recognized by a large number of surgeons of the modern school, who now practiced the principles he had so long and earnestly practiced and strenuously advocated.—*King's College Hospital Reports, Medical Press.*

Bifid Uvula. Nov. 13th, 1871.—Dr. Hodges showed a cast, which had been taken, of the roof of the mouth of a young woman, at the Massachusetts General Hospital. The whole of the roof of the mouth, both hard and soft palate, was perfect, the only thing abnormal being a slight split at the extremity of the uvula, and yet the patient's voice was such as is heard in a case of very severe cleft palate.

The case was a very interesting one, as bearing on the question of staphyloraphy. No operation could in any case make the hard and soft palate more perfect than it was in this case, and yet the voice is as bad as though there were a large fissure.

Dr. H. J. Bigelow first called attention to the fact that whatever the success of the operation in closing the fissure may be, the voice is benefited very little, if at all, by it. Dr. Hodges himself had operated in twenty-eight cases, and had never seen any improvement in the voice. The German surgeons have come to the same conclusion, and during the past year have been using an obturator, which has just been invented, which improves the voice more than any operation can. In these cases the deficiency in the voice is due only in part to the cleft in the palate, but mainly to an affection of the muscles.

Dr. H. K. Oliver thought that bifid uvula was much more common than is usually supposed. He had seen several cases, but none in which the voice was affected.

Dr. Hodges said it was not the split that caused the abnormal voice, but the fact of the velum palati not closing up the posterior nares. The result is the same as regards the voice, whether the inability to close the posterior nares is due to a lack of muscular power, or to a split in the soft palate. The object of the operation for cleft palate is twofold: first, to improve the voice, which it does not do, and second, to prevent the impaction of food in the larynx and nares, which is a source of great annoyance to the patient. Moreover, the moral effect of the operation is a good one, as the patients always feel more cheerful if the palate is restored, even if the voice be not improved.

Dr. Cheever spoke of a case of cleft palate, where he had operated on a girl five years old. He got perfect union down to the very tip of the uvula, the length of which, also, was about normal, and yet there was no improvement of the voice. The same was true, also, in several cases, where, as far as the operation went, he had got very good results. He did not see how the condition of the muscles of the palate could be improved by an operation, as, being already weakened, they are divided and reunite, forming rigid bands. He mentioned an obturator which he had seen worn with great benefit, a description of which was given in one of the graduating theses at the college.

Dr. Hodges had seen the patient referred to by Dr. Cheever, and thought that the voice was more improved by the obturator than it could have been by any operation. A more perfect one, however, had been made recently. The operation for staphyloraphy as now done, under ether and with the gag, is by no means a trifling one. The pressure of the gag and the etherization cause the venous hemorrhage to be very profuse. He had had more than one case where a severe hemorrhage had nearly carried off the patient, and other operators had experienced the same thing.—*Report Boston Society for Medical Improvement, Boston Med. and Surg. Journal.*

Case of Salivary or Parotid Fistula.—August 9th, 1871, I was called to a daughter of Mr. T., of this place, and was told that when eighteen months old, a large abscess had formed at the site of the parotid gland, and involving its structure. The parents treated this with poultices. When pus appeared near the integument, the father "picked it open with the point of a knife." She soon recovered from the abscess, but was left with a salivary fistula at the point where the puncture was made. This continued to discharge saliva in spite of all treatment that had been adopted prior to the time I saw her. The site of the fistula was opposite *the posterior margin of the gland*, and about *seven lines posterior to the neck of the inferior maxilla.*

For the whole period, seven and a half years, saliva had flowed continually from the fistulous opening, and, during the mastication of food, would run down the neck in quantity sufficient to wet all the garments at the upper part of the chest; or if the head was inclined forward while eating, it would drip rapidly off at the chin. The skin below the fistula was excoriated by the discharge. She was slightly anæmic, and of bad color of skin, but in other respects healthy.

I examined the duct of Steno with a fine probe, and found it pervious and healthy throughout its entire length, the probe passing readily back to the gland. I then introduced a very fine probe into the fistula, which was about thirteen lines in depth, the point passing obliquely inward and anteriorly. The natural channel, Steno's duct, being open, there could be no objection to closing the fistulous channel by granulation, and without serious operative procedure, should we find it possible to do so. At first I concluded to try mild stimulating applications introduced to the bottom of the fistula, for the purpose of securing granulation. Some cases of salivary fistula have been permanently cured by the simple introduction of the probe into the channel for exploration, the procedure causing sufficient granulation to close the fistula. I was not so fortunate with my case.

The mild applications, after a fair trial, failed to accomplish the desired result. I then dilated the integumentary portion of the fistula, inserted a small silver canula, and injected a solution of argenti nitrat. gr. xx, aquæ destillatæ ℳxx, into the abnormal channel. This caused severe pain for several hours, and was followed by active inflammation and free suppuration, pus and saliva flowing freely from the fistula. This continued for three weeks, but gradually diminished after the first three days. During all of this time a compress was bound firmly over the gland and fistula. At the end of this period inflammation had ceased, the swelling had disappeared, and the opening continued to discharge saliva in very small quantities *during mastication only.*

On introducing a fine probe at this time, the fistula was found to be but three lines in depth. I then repeated the injection as above, which caused slight inflammation and the flow of a few drops of healthy pus, after which the fistula closed firmly, leaving a small pit at the site of the former fistula. The erythematous condition of the surrounding skin rapidly disappeared, and the girl is now well, of much healthier hue of skin, more vivacious than formerly, and not a little happy for the relief afforded from a troublesome and disfiguring malady.

I think, that to simply introduce to the bottom of the fistula a fine probe, which had been previously coated with nitrate of silver, would be as effectual a procedure as the methods adopted in the above case.

Reports of cases of fistula similarly located are quite rare, and such cases are, probably, by no means numerous.—*Dr. T. Curtis Smith, in Am. Jour. of Med. Sciences.*

Diseases of Buccal Cavity of Children.—The following cases are of interest as forms of disease affecting the buccal cavity of children. The cases of ranula indicate that this kind of tumor of the mouth is often congenital, and may, in the first days of life, be of danger by preventing the infant suckling. They would seem to negative the general truth of the explanation frequently given of their origin as being due to dilatation of Wharton's duct; for it is difficult to conceive how so small a tube can expand into cysts of this size. They prove, too, that in the treatment of ranula it is not always necessary to excise a portion of the cyst-wall or to promote contraction by setons, but that recovery will follow from merely evacuating the contents of the cyst by means of a free incision.

*Congenital Ranula.* Under the care of Mr. Bryant.—Mary B., aged four days, was brought to Mr. Bryant for a transparent swelling, the size of a large almond, beneath the tongue. It had existed from birth, and by its gradual increase had prevented the child suckling. It was clearly a ranula. It was opened freely; the ordinary mucoid fluid escaped. A good recovery followed.

Mr. Bryant had operated upon a brother of this child, aged four days, eighteen months previously, for the same form of congenital tumor, with the like result. The tumor was so large as entirely to prevent suckling.

Eliza K., aged seven weeks, was brought to Mr. Bryant at this hospital for a double ranula of a congenital nature, which prevented suckling. The cysts pressed the tongue upwards, and were above the level of the gums. They were both opened freely from end to end, and a good recovery followed.

William S., aged three months, came under notice with a congenital ranula on the left side of the tongue. Its increase had been gradual. It was opened freely, and a good recovery took place.

*Warty Growth on Tongue of Child.*—Alice B., aged fourteen, applied at Guy's Hospital with a warty growth on the posterior part of the tongue. It had been accidentally discovered three weeks previously, on looking into the mouth for a sore-throat. The wart was about the size of a sixpence. Nitrate of silver was freely applied to its surface, and a good recovery followed in about one month.

*Salivary Calculus in Duct of Sublingual Gland.*—Eliza S., aged twenty-two, came under treatment for a painful swelling situated beneath the tongue. It had been felt for many months, and was more painful and much increased in size after eating, the pain passing up the side of the jaws. It gradually subsided between meals. On examination, a small calculus was clearly to be felt occupying the orifice of the duct of the left sublingual salivary gland. With the nail it was readily picked out. In one week all symptoms had disappeared. The calculus was about the size of a hempseed.—*Guy's Hospital Reports, Medical Times and Gazette.*

Ulceration of the Inferior Maxillary Bone.—This young lady comes from the country; has had previous good health. Five years ago a small ulcer came near the angle of the lower jaw. It discharged matter, and occasionally small fragments of bone, for several months.

Fistulous openings have continued discharging matter and bone spicula, at irregular intervals, up to this time. Six weeks ago I cut down and removed dead bone; inflammation is going on, and when it subsides I shall operate again. Special attention should be given to keep up the strength and health.—*Prof. Armsby's Clinic, Albany Hospital, Med. and Surg. Reporter.*

Foot and Mouth Disease in Children.—Some weeks since we stated, on the authority of the Chairman of the Hertford Chamber of Agriculture, that children fed on the milk from diseased cows had suffered from a complaint similar to the "mouth disease." Since then Dr. Alfred Packman, of Puckeridge, has treated several cases of this complaint, and states in a certificate that the patient "suffered from a peculiar eruption of the mouth, nose, and face, accompanied by sore tongue and throat, and salivation. I have no sort of doubt that the affection was caused by drinking milk from cows suffering from foot and mouth disease."—*Medical Times and Gaz.*

Nitrite of Amyl.—H. C. Wood, Jr., M.D., Phila. (*Am. Jour. Med. Science*), remarks that there is one disease in which nitrite of amyl theoretically ought to be of great value, viz., tetanus. There is scarcely any doubt but that there exists in that affection a condition of exalted functional activity of oxidation, and consequently of temperature of the body, so that the nitrite would meet a second indication. There is one fearfully painful affection, namely, angina pectoris, in which a considerable amount of clinical evidence shows the nitrite of amyl to be of very great value. Quite a number of cases have been reported, in which the inhalation has been of very great service in affording rapid and permanent relief. He has had an opportunity of using the nitrite in one case of severe suffering connected with valvular disease, and the effect of relieving the heart pang after the failure of other remedies was astonishing. In regard to the method of administration, he is not aware that the nitrite has been given otherwise than by inhalation. Its totally insoluble and highly volatile nature renders it unfit for exhibition either in solution or mixture; but he does not see why it could not be given dropped upon a piece of sugar. In cases of tetanus, it seems plausible that the remedy would be more efficient if given by the stomach in frequent small doses. When it is to be inhaled, five drops should be placed upon a handkerchief and held close to the nostrils, the pulse being closely watched and taken as a guide for the continuance or withdrawal of the drug. If necessary, the dose should be repeated. When giving it by the stomach, he does not believe it would be safe to start with more than two drops until the effects of the medicine so administered have been more studied than at present.—*Medical Record.*

Carbolized Gargle for Diphtheria.—Charles Sedgwick, Jr. (*New Remedies*), recommends the subjoined formula: Carbolic acid, 20 minims; acetic acid, ʒss; honey, tincture of myrrh, each fʒij; water, to f℥vj. The acids to be shaken together well before the other ingredients are added.—*Medical Record.*

Cure for Toothache.—Dr. Henry T. Reynolds, of Baltimore, writes to us that "for eighteen months I have been using acetate of lead as a remedy for what Burns calls the 'hell of all diseases,'—toothache. I find it to act better than any of the numerous remedies proposed in the books, and in cases in which it is applicable the relief is instantaneous. Let the patient apply from one to three grains to the cavity for a moment or two, then spit it out. It fails in fewer cases than any remedy that I have tried,—not more than eight per cent."—*Med. News and Richmond and Louisville Med. Journ.*

Odontalgia Insomnia.—E. McD., aged thirty, a woman two days previously confined of her sixth child, was in great pain from violent toothache, which prevented her from sleeping since her confinement. She was in semi-febrile condition from the pain, her pulse about 100. I gave her 15 grs. of chloral in a draught, this gave her immediate ease, and within a few minutes produced sleep, which lasted for three hours. She awoke talking incoherently for a few moments, but continued free from pain.—*Dr. X. T. Bates, Jour. Materia Medica.*

Tetanus.—Among other interesting papers lately read before the Academy of Sciences in Paris, was one by M. Demarquay, in which he showed that several cases of lock-jaw had been cured by extremely hot-air baths, followed by the injection of morphia under the skin.—*The Lancet.*

White Gutta-percha.—The *Journal of Applied Chemistry* gives the following method of preparing this for dentists' use and for other purposes: Four ounces of pure gutta-percha are digested with five pounds of methyl-chloroform until the solution is thin enough to pass through filtering-paper. It is then filtered (an additional pound of chloroform will facilitate this), and should then be clear and nearly colorless. Alcohol is now added in sufficient quantity to precipitate the gutta-percha in a voluminous white mass, which is washed with alcohol, pressed in a cloth, and dried in the air. It must finally be boiled in water in a porcelain vessel for half an hour, and while still hot rolled into sticks. The chloroform can be separated from the alcohol by adding water, and the alcohol recovered by distillation.—*Druggists' Circular.*

How to prevent the rusting of Steel Instruments.—A correspondent confidently recommends equal parts of carbolic acid and olive oil, smeared over the surface of the instruments, as an unfailing preventive of rust in any climate. He states that it is a plan much used by medical officers in the navy, and it is found to preserve the burnish and brightness of the steel, however moist and warm the atmosphere may be. Our correspondent adds that it will also be found advantageous to have the fittings of instrument-cases made only of brass and polished wood, as the glue with which the velvet usually employed is fastened on is apt to absorb moisture and remain damp for a considerable time.—*The Lancet.*

To prevent polished Materials from Rusting.—The following has been tested and approved by good authorities: put half an ounce of solid paraffine into a wide-mouthed glass bottle, and let it melt in boiling water; then add one and a half ounces of petroleum; shake the mixture, after having corked the bottle, until it becomes a cold ointment. In using, cover the metal with it, and wipe off afterwards the greater portion, so that the polish will be little affected. A thin coat is sufficient to prevent polished metals from tarnishing.—*Boston Jour. of Chemistry.*

# HINTS AND QUERIES.

What is the best treatment, after removing calcareous deposits from the teeth, for gums which have become diseased by its accumulation?—A. G. C.

Are there any vascular and nervous connections of the dental pulp with the dentine?—E.

How long may nitrous oxide be kept without impairing its strength and efficiency as an anæsthetic.—E. W. G.

Having, for the past five years, filled the canals of such teeth as I have "*treated*" with twisted cotton dipped in creasote (carbolic acid?) and being well satisfied with the results, I desire to ask for information as to the objections to its use.—A.

What is the most satisfactory practice in making accessible for filling the small cavities on the approximal surfaces of the anterior teeth? The old method of separating with rubber and filling at a subsequent sitting, the teeth afterwards returning to their original position, has, I conceive, many objections. Will some one please give us the most approved?—John.

What degree of density in a gold filling is most desirable for subserving the preservation of a tooth.—C.

Having recently tried some of the gold foil that escaped destruction at Chicago, I was so much pleased with it that I desire to know whether any of your readers who have tested it can give me the cause of the peculiar appearance it presents? What change, if any, has taken place in the arrangement of the crystals?—A. E.

When a tooth is in such condition that an abscess is threatened, and cannot be prevented, is it better to establish a fistula by mechanical means or to permit it as the result of suppuration?—K.

What shall we do with deciduous teeth in which the pulps are exposed.—W.

Does hereditary syphilis always record itself upon the teeth?—J.

You invite queries. I will propose one at the risk of being considered impertinent. Does S. S. White hold any stock in the Goodyear Dental Vulcanite Company, or is he interested, pecuniarily or otherwise, in the success of the Goodyear or Cummings patents? A traveling agent of the company told me he was, and I find others who have this impression.—Missouri.

In reply to the question of "Missouri," I take pleasure in saying that I am not, and that I never have been, a stockholder in the Goodyear or other Vulcanite Company, by whatsoever name called; that I am not, and never have been, pecuniarily interested to the extent of a single dollar in the Goodyear, Cummings, or any other patent for the application of rubber as a base for artificial teeth; nor have I any interest in any of the materials for bases in the market—celluloid included—except as a dealer.—S. S. White.

The following is the answer to Josiah Bacon's statement that "he owns the celluloid base:"

Josiah Bacon does not own the celluloid base, nor any of the patents under which it is made, sold, and used; nor has he any interest in said base, or patents, or any portion thereof, in any manner whatsoever.—I. Smith Hyatt, *Secretary Albany Dental Plate Company.*

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A Good Way to fasten Teeth on Rubber Plates without Vulcanizing.—My mode of attaching one or more teeth on rubber plates with the celluloid base is to form a dove-tail groove in the plate, occupying the space to be supplied: into this the teeth are arranged and supported with wax. The dovetail is then filled in with wax even with the surrounding surface. The case is then imbedded in plaster in the flask, the same as if repairing with rubber. As soon as the plaster is hard, the flask should be separated and wax removed with boiling water. Cut a solid section of the celluloid base the desired size and shape, which should be pressed gradually, with the aid of a clamp immersed in boiling water, until all parts of the flask are brought together. Give it time to cool; finish the same as rubber.—J. H. M.

FOLSOM'S FLEXIBLE EDGE.—I desire to caution the profession against the purchase of this patent. I was very much pleased with the idea, and thought it a valuable means of increasing the atmospheric pressure in full upper sets. I find the patent, however, practically worthless, on account of the flexible edge losing its integrity. I think it only fair to state the facts in all such cases, that others may be saved the cost of purchasing a right which is valueless practically.—CAUTION.

Desiring to afford opportunity for a free expression of opinion on all topics connected with the practice of dentistry, we give the above as the experience of one man. We hear of others, however, who are using the flexible edge with results entirely satisfactory.—ED.

REPORTS OF SOCIETIES.—The criticism I have to make upon the DENTAL COSMOS is, that you tantalize us off here in this remote corner by telling what a very interesting and instructive address this or that learned doctor made (upon some topic which we are extremely anxious to learn more about), without giving even the shortest synopsis of what was said.

I know you are not to be held responsible for the deficiencies of secretaries, who fail to report exactly the things we most desire to know about; but cannot you compel better reports by declining to publish unsatisfactory ones?—W. M. G.

## THE CUMMINGS PATENT.

NEW YORK, Jan. 18, 1872.

DR. S. S. WHITE.

DEAR SIR,—In reply to your inquiry as to what action has been taken by the profession in New York and vicinity, I will state to you, as concisely as possible, what has been accomplished so far, and what are the plans for the future.

At the first meeting, held December 23d, 1871, a statement somewhat in detail was made by Mr. Foster, both as to the merits of the case, and the chances of a successful issue in the suit of Dr. Gardiner, now on the calendar of the United States Supreme Court; and also of the necessity of immediate action on the part of the dentists to prevent a decision adverse to themselves, regarding this both as a test case and a final one.

A committee was appointed to consult with Mr. Foster in regard to his views and terms, and if it seemed well to co-operate, to devise ways and means to defray the expenses of the suit.

The committee reported at the next meeting, held Wednesday evening, January 3d, that they had had an interview with Mr. Foster, and that his propositions were: First. That for one thousand dollars cash (about five hundred dollars of which would be needed in the preparation of documents for the court), he would carry the case through, provided there was no withdrawal on the part of Dr. Gardiner. Second. Should the Cummings patent be declared void, he should expect a fee of twenty-five hundred dollars, and as much more as the liberality (and, I will add, the obligations) of the members of the profession would bestow. Should the court sustain the Cummings patent, no further claim for compensation would be made upon the dentists.

The committee recommended that the one thousand dollars should be raised by immediate cash contributions by every member of the profession who could be reached.

Also, that provision should be made for the additional twenty-five hundred dollars, and as much more as possible, by a system of notes, payable on condition, and not until the Cummings patent should be declared void.

The report of the committee was accepted, and the committee was desired to continue as the Executive Committee of the organization.

Five new members were added: Drs. Hill, Francis, Kingsley, Crane, and Blodgett.

Dr. S A. Main was elected Treasurer. It was then resolved that the profession, as represented by the meeting, associate themselves in the case of Dr. Gardiner, and that the committee be authorized to employ Mr. Foster as counsel, on the terms proposed.

They were empowered to obtain, if possible, some pledge from Dr. Gardiner to the profession, in addition to that already given his counsel, that he would not withdraw the suit. (This pledge has been obtained.)

The proposition that every member should refuse to take a license was received with acclamation.

I think this covers all the important measures suggested and adopted at that meeting.

It will be seen from this that if all the members of the profession will contribute, the burden to each individual will be exceedingly small, especially when compared with the chance of an exemption from the rubber tax. It is hoped that every dentist will be eager to share his part in the risk.

Respectfully, E. H. Raymond, *Secretary*,
28 E. Thirteenth St., New York.

The following communications were received after the last form of this number was ready for press. We have added the pages required in order to give them early circulation.—Ed.

The Committee of the Dentists of New York and Brooklyn take pleasure in acknowledging the receipt of the following communication for publication in the Dental Cosmos, and which is, for the most part, made up from the records of the cases now before the United States Supreme Court.

It is very timely and straightforward in its statements, and is laid before the profession in the hope that it may, if possible, increase the energy and strengthen the hope,—we trust well founded,—in the efforts now being so widely made, to free ourselves from an unjust and onerous tax.

The Committee also desire, on behalf of the dentists, to acknowledge the liberality and the fraternal spirit with which Dr. S. S. White is aiding in the present exigency. While he carefully disclaims any indorsement of the Dr. B. Gardiner appeal, he has contributed generously to the first amount, which it was necessary to raise immediately, because he wishes to aid us in doing all that it is possible for us to do under the circumstances.

The brief period between the appointment of the Committee and the calling of the case for trial (which is likely to be reached by February 15th), made it impossible for societies at a distance to so mature their plans that they could employ additional counsel in time to permit them to study the case.

In this emergency Dr. S. S. White, having been informed that Hon. S. S. Fisher, who had studied the case thoroughly while working as chief counsel for the dentists of the West, has taken a retainer from Bacon to go on the shelf, and fearing that the case might be lost for want of proper watchfulness, and hoping to avoid the hearing if it should be found that it could not be properly presented, while utterly declining to influence any other person to aid or subscribe to the maintenance of this defense, proposed to the Committee to employ, at his own personal cost, counsel of eminent ability to be associated with Col. Foster.

This offer the Committee thankfully accepted. Calling upon Col. Foster with Dr. W., he offered an eminent practitioner of Philadelphia as associate counsel, who was promptly and fully accepted as such by him.

W. A. Bronson, *Sec. of Committee.*

[*Communication.*]

The importance of the appeal now pending in the Supreme Court of the United States, instituted to declare this patent null and void, cannot be overestimated. Considering that of the twelve thousand dentists in the United States, at least one-half, in their practice, use hard rubber, or vulcanite, for dental plates, and estimating the royalty at $75, we would have an annual tax on the profession of $450,000, and this when the patent is in litigation. How much will it be when Josiah Bacon has a decree of the Supreme Court of the United States sustaining the patent?

The case of the Goodyear Dental Vulcanite Company *vs.* Benoni E. Gardiner has been selected by the dental profession as a test case, and, if successful, will relieve the profession from all future exactions.

On the 6th of May, 1872, the hard rubber patent of Nelson Goodyear will expire by its own limitation, and thenceforth Bacon must rely solely upon the Cummings patent to tax and drain the profession, and they must now present a united front, if they expect to succeed.

A short statement of the claim of Cummings for his letters patent, his mode of obtaining them, and the defenses now presented, will enable the reader to judge of the probability of success in this appeal.

Cummings claims that he is the original inventor of the application of hard rubber for dental plates, and his whole claim hangs on the truth of this assertion. He filed a caveat in 1852, in which he states that he has discovered such an application, and wants time to perfect his invention. He applied for a patent in 1855; it is rejected. He appeals to the Board of Examiners, who reject it, and the Commissioner affirms the rejection in February, 1856. He does nothing until in 1859, when he attempts to withdraw his application, which is refused, because it has been finally rejected, when he again lies still until in 1864, when he makes a new application before a new commissioner, and obtains a patent.

The defenses, all of which are proved in the Gardiner case, are many. We will give a few:

First. Cummings was not the first one to apply vulcanite to dentistry. Perhaps, if he had discovered a *new process* of applying this, he might have properly claimed a patent; but he claimed *no* process, merely the bare application of this substance as a basis for dental plates.

This application was the subject of letters patent to Dr. Truman, in England, in 1848, who, at the World's Fair in London, 1857, received the highest medals for his plates, which were then eulogized by the Jury of Examination for their perfect workmanship and utility. In 1850, letters patent were granted in Paris. In the year 1851, Dr. De La Barre read a long article before the Academy of Sciences of France, giving the details of his method of using it. Dr. Evans had used it in Paris in 1848, and made several sets of teeth for Goodyear in 1851. As early as 1845 Dr. Berend, of Liverpool, was using it, and Dr. John Lovejoy was doing the same thing in New York City the same year. It was described in the various journals of Europe and the United States. Cummings claims in his caveat, in 1852, that he has just discovered his application, but has not perfected it, showing that he could not then do it himself.

Second. It was shown that Cummings himself did not make a dental plate even up to the date of his patent. He was obliged to obtain the plates he used in his application for a patent of one Robert Haering, Dr. Mallett, of New Haven, and Wm. A. Bevens, a workman in Goodyear's shop, in New Haven.

Third. His original patent was for an application, and without disclosing any process to manufacture a plate. It is a familiar principle of patent law that a known article or substance, applied to a well-known manufacture or use, is not the subject of letters patent. It is not patentable to merely apply the known article to a new use; and this is all Cummings did in his first patent.

Accordingly, in a few months he surrendered his patent, and obtained a reissue, which, for the first time, detailed any *process* by which such plate could be made, and now they are claiming that Cummings invented this *new process.*

Fourth. That this *process* was one well known to dentists as early as in 1856, and many were practicing it throughout the United States. In fact, Cummings was almost the only *one who* was not familiar with this process years prior to his letters patent.

Fifth. Had Cummings been the inventor and discoverer both of the application and this *process*, he clearly would not have abandoned it to the public. For eight years after the rejection of his application he allowed all the profession to use it, made no claim to any rights under it, but acquiesced, and announced to them that he had tried it and failed.

When the Hard Rubber Company sold licenses for the use of rubber, *he took a license* from them. When his assistant wished to use it in 1860 he could not teach him how to make it, and employed and paid a young man to instruct him in the art. Unquestionably the idea of getting the patent in 1864 had never occurred to him as late as 1862, and probably dates from his acquaintance with Josiah Bacon.

To claim that he did not abandon to the public necessitates the proposition that he *could* not abandon it, as he did all he could to show such abandonment.

Sixth. The reissue was a different invention from the original patent, which would render it void. If the first patent was merely for the application, and this was not patentable, then the reissue could not be so by inserting in it a new and patentable claim. A patent cannot be issued for an invention which the inventor has suffered to go into public use for two years; and he must apply for his patent within two years after making his invention. If his original invention of 1856 was for a *process*, then his reissue of 1865 was practically a new invention, and had been sufficient to go into public use more than two years, and hence was void.

Seventh. Two other objections, technical in their nature, but fatal if well taken, are that the original company, the Dental Vulcanite Company, incorporated under the Massachusetts law, and the present company, the Goodyear Dental Vulcanite Company, incorporated under the New York manufacturing act, are each incorporated merely and solely for *manufacturing purposes*, and any business they attempt beyond those mentioned in this charter is *ultra viris*. Hence they would have no legal capacity to enter into the business of selling licenses to dentists; and the reissued patent, which is the only one they now own, being issued to a corporation who had no capacity to receive it, is void. For, if the corporation cannot receive it, they cannot use it, or even sell it.

There are other points relied upon; but the above present those most important, and either of which is believed to be fatal to the claims of the company and Bacon.

All the facts upon which the above are based were fully proved, and none were *contradicted*.

Unquestionably the fact of abandonment is the most palpable one, and, coupled with the refusal to call, or suffer to be called, Cummings as a witness to prove by him his intention to claim his invention during the eight years' abandonment, and his failure to deny his ignorance of the *process*, seems to leave the Supreme Court no option but to refuse Judge Clifford, and relieve the profession from this incubus.

The dentists of New York and Brooklyn have assumed the burden of this fight. They call upon the profession to sustain them. They ask no assistance except in the event of success. But they do believe that all high-minded members of the profession will aid them as well as sympathize with them in their labors.

## THE CELLULOID BASE.

AUBURN, N. Y., January 30, 1872.

MR. EDITOR,—In a communication of mine, which appeared in the January number of the DENTAL COSMOS, I remarked that I held myself ready to impart instructions to such of the profession as might be unacquainted with the processes of working the celluloid base successfully. I admit that this offer was put forth to induce my brethren of the profession to abandon the use of rubber, and I foresaw that the proposition would devolve on me replies to letters from those disposed to avail themselves of such offer; but I hardly anticipated such a shower of letters as the mails daily pour in on me, which I find it impracticable to answer individually. I therefore avail myself of the pages of the DENTAL COSMOS to reply to all who have done me the honor to take me at my word.

For myself, I am willing to adopt celluloid *to the entire exclusion of rubber* for both new work and for repairing old plates, made of either celluloid or rubber, on the satisfactory assurances given me that the late improvements upon the earlier processes of producing the celluloid base secure a hardness, toughness, solidity, and permanency of form that compare favorably with rubber. The desideratum of avoiding *shrinking of the plate* is claimed to have been attained by this successful hardening, toughening, and solidifying process in the manufacture of the celluloid base; and with this (to me) satisfactory assurance, I have no hesitation in recommending it to my patrons as indeed preferable to rubber, in view of the demonstrable fact that the rubber base contains properties in its composition prejudicial to health.

In writing for publication, I am necessarily restricted in space, and can present but a few of the more important and prominent rules or guides to its successful use.

1st. *It is to be worked in oil*, sufficient heat not being attainable with water in an open vessel; the highest temperature which can thus be reached being 212°, whereas the working of the celluloid requires 320°.

2d. *To mend a celluloid plate*, cut away the plate as required; then wet celluloid filings or scrapings with ether and alcohol (which, combined of two-thirds ether and one-third alcohol, are a solvent of celluloid), and when in a tacky or thick plastic state, slightly dress the parts with it, which insures a more ready union. This done, pour your solvent into a small glass vessel, closing the top with the palm of the hand, or otherwise, in order to prevent the escape of the ether. Into this put the piece of celluloid to be used, allowing it to remain immersed a few minutes; until the surface only becomes somewhat plastic; then take it out and place it in position, and heat in oil to a temperature of 320°, by the thermometer. On removing the cast from the oil, care must be taken to *cool it thoroughly before opening the flask* for cutting out the plate, in order to obviate any warping or change of form. The parts will be found united perfectly.

The most delicate thin gums need never be broken in the use of celluloid. As a safe precaution to insure firmness of the teeth in position, it will be well to champer the tops of the gums, so that the celluloid may be left intact over them when finished. Raise the heat to 260°; then turn down a little with the finger to a point of *slight* resistance, being careful not to force it much until you reach 300°, but when 320° are indicated, *down with it.* No fear need be apprehended of a softening of the cast from heating; it only becomes the harder. No solutions are needed to harden the cast. Any imperfection found in a plate on removing it from the flask may be readily repaired and made complete by using a piece of celluloid (first moistening its surface and that of the imperfect portion of the plate with the solvent), by rubbing and pressing it into position with the fingers, leaving it to be worked down when dry; or, the filings or scrapings may be moistened with the solvent and applied with a spatula. The former is perhaps preferable. In either case, however, a reheating is unnecessary.

It may be esteemed worthy of mention, that when a celluloid base is found to be not in acceptable form for the cast to be used, it may readily be adapted to it by immersing in boiling water, when it can be contracted or distended to meet the want.

The question is asked, Is celluloid as strong as rubber? I reply, I have never known one to break. When in the mouth it becomes more elastic from the warmth imparted to it; hence, adapting itself more perfectly, it is less liable to break in using. Patrons should be advised to wear their plates on retiring for the night, thus avoiding any risk of contraction or shrinking. Should any contraction or shrinking take place, it may easily be relieved by scraping off a little at the proper points.

Again it is asked, Can a new block of teeth be attached with celluloid to a rubber plate? I answer, Dovetail, drill holes through plate, countersinking on opposite side (just as is done when rubber is used to repair with); place celluloid in position, and heat up in oil, pressing together as in making a new celluloid plate.

It is further asked, Can a plate be used a second time in case of being obliged to work it over? I answer, It can be done successfully by wetting the parts with the solvent. If teeth are to be substituted, remove the old ones, and proceed with the old plate as with a new one. If there be any broken parts to repair, soften your filings or scrapings of celluloid with the solvent, and apply the same to the broken parts, avoiding a too liberal use of the plastic mass.

In using scraps of celluloid for repairing a plate, soften their surfaces in the solvent (as before stated), when the parts will unite one with another perfectly, and as firmly as an original base or plate. It need not necessarily be in one entire piece to insure strength. A good hard cast is of primary importance.

Geo. W. Tripp.

We desire it to be distinctly understood that neither Publisher nor Editor of the Dental Cosmos is in any way committed as to the wisdom of any action, or correctness of any opinion, in reference to the Cummings patent and the cases under it, or as to the hope of any relief to dentists from anything done or being done.

Whatever in the present or in any subsequent number of the Dental Cosmos may appear, over the signatures of others, or prepared by others for publication, will have place as a part of the history of this painful case, without implying approval or dissent.—S. S. W.

THE

DENTAL COSMOS.

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# ORIGINAL COMMUNICATIONS.

## DENTAL PATHOLOGY AND THERAPEUTICS.

BY J. FOSTER FLAGG, D.D.S.,

FORMERLY PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS IN PHILADELPHIA DENTAL COLLEGE.

[Entered according to act of Congress, in the year 1872, by J. Foster Flagg, D.D.S., in the office of the Librarian of Congress at Washington.]

### PREFATORY NOTE.

HAVING, for the past fifteen years of my practice, made the subject of Dental Pathology and Therapeutics my specialty, an amount of experience and material has resulted, which it has seemed to many others, as well as myself, might, by publication, be more generally rendered subservient to the wants of such members of our profession as desire to expend energy in the direction of the salvation of the natural teeth, even when affected to the extreme of curable disease.

The delivery of several courses of lectures to what, I am happy to say I believe, were kindly appreciative classes, has resulted from time to time in the publication of manuals, papers, and magazine articles by gentlemen who, having verified teachings, have thus evidenced the sowing of seed upon good ground, and in so doing have naturally followed their lecture-notes in the classification of ideas. While I can but regard this as tacitly complimentary, I feel nevertheless that it is but just to myself to claim *originality* when, in writing from my own notes, marked and continuous similarity with other previously-published articles is apparent. In this connection, I desire to tender to my friend, Prof. Robert Arthur, formerly Professor of Principles of Dental Surgery in Philadelphia Dental College, my especial acknowledgments for having first given me that interest in his specialty of dental practice which I have ever since labored to develop, and, while thanking him, award to him the credit of bestowing upon me, through lectures, those "notes" which formed the basis for my work in after-years.

### INTRODUCTION.

In prosecuting the study of Dental Pathology and Therapeutics as a branch of one of the specialties of the healing art, it becomes necessary, in the first place, to enter very briefly into the discussion of such general considerations as are recognized as forming the basis upon which remedial efforts are founded.

Without a proper understanding in this respect, it is easily appreciable that it would be impossible for me to make myself intelligible; and yet the field is so immense that, leaving out much, the utmost possible condensation even of that retained is desirable. In the first place, it would present that a good insight should be afforded regarding what is termed "Etiology," or a knowledge of the various causes of that state which is known by the common appellation of "disease."

This would lead to observations on the nature of this condition, or, what is understood by "Pathology" proper, in connection with which, general principles of treatment, which have been dictated by reason and verified by practice, would have to be mentioned and explained. The various phenomena of disease, classifications, distinctions, and results would have to be dwelt upon with sufficient care to insure the formation of correct ideas as to what is intended to be conveyed to the mind by such terms as Semeiology, Diagnosis, Prognosis, etc., after which the subject of the "blood" would have to be taken up, and, with some considerable degree of minuteness, physiological considerations in relation to its composition and pathological knowledge of the morbid changes to which it is subject would have to be presented.

In place here would be the remarks upon those various phases of disease which are so continually coming under the observation of every dentist, and with which it is of the utmost importance that he should be thoroughly conversant, in order that he may be enabled so to treat them that a gratifying amount of success may be the result.

These phases of disease are called "Determination of Blood," "Congestion," and "Inflammation," with the several results of "Effusion," "Resolution," "Suppuration," and "Gangrene" or "Necrosis."

These latter I propose to present at sufficient length to enable my readers to have, at least, a *knowledge of what I mean* when I use the terms referred to; for, from my experience, the requisite space for so doing could not be better employed.

The causes of these abnormal conditions are exceedingly numerous, and it is important that the particular cause of each case which may present should be fully known, as upon this is based the *minutiæ* of such curative measures as are to be adopted; and it must not be forgotten that, while comparatively superficial information suffices for the distinguishing of difference between circumscribed and extended inflammation, it is by no means as easy to decide between disease of scrofulous and syphilitic character, while the almost specific treatment of the latter tends, by degrading the already low products of the former, to the induction of most unsatisfactory and oftentimes serious results.

While thus there exists the liability of gross error, it becomes the duty of every member of the dental profession to endeavor so far to render himself competent, as that nothing which shall tend to throw obloquy upon that specialty shall be chargeable to him, remembering that it is not the profession which makes the men, but that it is the *men* that make a profession.

Dental diagnosis and prognosis is a study of the more interest, from the fact that in our specialty we are guided, in most instances, by such unmistakable indications as to render our decisions unerring, thus giving us greater confidence in our own powers, and, as a natural sequence, placing the means within our reach of commanding the confidence of our patients.

We meet the majority of those morbid conditions which it is ours to combat, face to face, as it were ; and while it is thus rendered more easy for us to grapple with them with a much greater certainty of victory, it is, for the same reason, even more obligatory upon us to become, so far as study can fit us for the duty, perfectly conversant with every ordinary form of dental disease, that when we meet, it may be to us as a familiar acquaintance, with whose every peculiarity we are thoroughly cognizant, and of whose every weakness we are able to take a proper advantage.

Promptness in diagnosing, confidence in prognosing, and a course of treatment which the sequel shall show to have been dictated by knowledge and judgment, are things which not only give eminent satisfaction to the patient, but are the instigators of that feeling of self-satisfaction which, after all, is the fee of fees.

I would like to dwell somewhat upon the importance of the subjects alluded to, from a knowledge that to one who, fresh from the laboratory and the office, has devoted his time exclusively to the acquirement of a degree of proficiency in the various manipulations which will devolve upon him in the daily routine of active practice, it is not easy to perceive the immediate connection between general pathology and gold foil; but I most earnestly hope that my efforts will eventuate in affording ample proof that upon a knowledge of the former most certainly depends much of the usefulness resulting from a proper employment of the latter.

Enough has been intimated to show the impracticability of incorporating much in the direction of general consideration in a work of this kind, and I have therefore decided to recommend, as a preliminary to the study of that which I shall offer, the careful perusal of "Williams's Principles of Medicine," and, presupposing the recommendation to have been adopted, shall content myself with such consideration of normal and abnormal circulation and their concomitants as I have already proposed, adopting, as far as may be consonant with my views of expediency, the position and nomenclature of the work referred to, in order to facilitate the harmonizing of general ideas to special practice.

### Normal Circulation.

In order to appreciate the slightest deviation from health, in the direction of death, it is necessary first to consider what health is, and view the actions of organs and tissues while in this condition. That this may be subservient to *practical* utilization, which is the object I shall have constantly in mind, it is better to put aside all considerations which admit mainly, or even in large part, of only theoretic speculation as to cause and effect, interesting and important as these are conceded to be as collaterals, and speak only of what we can demonstrate to exist as action, function, or concomitant. To this end we discard innervation with all its perplexing possibilities, nutrition with all its microscopic probabilities, and even circulation, so far as its theoretic capabilities are concerned; but we retain the knowledge, as a starting-point, that a fluid which we call "blood" is obtained from food, and that "the blood is the life;" we retain the facts (so believed to be) that by analysis we find this fluid to be composed of albumen, corpuscles (red and white), fibrine, fatty matter, salts, and water,—in varying proportions; we recognize the possibility of two arrangements of these components: the one during arterial, venous, and capillary circulation, as corpuscles suspended in a fluid, composed of the rest of the constituents in solution in the water, called "liquor sanguinis;" and the other in the state of "drawn blood," after coagulation has taken place, provided that in the absence of preventives it can take place, producing a clot or crassamentum of corpuscles and fibrine, and the remaining constituents in solution in the water, called "serum."

This peculiar change called coagulation is regarded as a vital action: the *first*, of organization, in a living tissue; the *last*, when separated from it,—the presence of the corpuscles being due to the accident of place.

We retain the fact that by some means this blood is propelled throughout the entire system, and that, in some form, some of its constituents permeate into every atomic component of every tissue; and we retain the fact that when this is done under the title of normal circulation, there is no knowledge of the presence of a part or organ to other than special perception,—circulation goes on unobserved,—innervation is unnoticed,—nutrition is imperceptible; but we also recognize that very great deviation from this *may* exist without perception that this is so. We have, then, to admit a large field which we call physiologico-pathological, and which varies in magnitude, dependent upon anatomical and physiological considerations pertaining to individuals and to parts,—as, for example, the extended destruction of a lung without inconvenience;

the presence of a devitalized pulp through years of disintegration, until it has, without the least knowledge on the part of the patient, so diseased contiguous parts, as that the slightest additional irritation will hurry on to such rapid and extensive suppuration as to produce even death: these, on the one hand, and the exceeding minuteness of the irritant which will usually be tolerated by the conjunctiva or the larynx without severe pain or extensive disturbance, form the range of our "debatable ground." Practically, then, we retain the position that in normal circulation we can *see* in the field of the microscope, in parts of animals adapted for this observation, the red and white corpuscles coursing with varying rapidity through the capillaries, the observable white, as a rule, rather larger than the red, and equally, as a rule, in closer proximity to the walls of the vessels; and we recognize as *concomitants* of this condition, normal nutrition and normal sensibility.

(To be continued.)

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## DR. ARTHUR'S SYSTEM OF TREATMENT FOR THE PREVENTION OF DECAY OF THE TEETH.

BY O. A. JARVIS, M.D S., NEW YORK.

It must be a real pleasure to every right-minded dentist to receive any creditable addition to dental literature. Its paucity is felt and deplored. Yet it is well not to be in haste to add text, standard, or popular works on dentistry until principles are better understood and practice better defined.

We question the wisdom of advocating with so much boldness a practice so at variance with nature, and receiving such doubtful support from results in practice.

Whatever may be the influence of this little book upon the practice of the profession, it is certainly calculated to weaken the confidence of the people in dentists and dental operations.

Let us examine the main idea of this book,*—viz., artificial separation for the prevention of decay. This idea has been forced upon the consideration of every man who has ever filled teeth, or tried to save them by any means; and it has been resorted to in every man's practice to the fullest extent allowed by judgment and experience. We will study this book with all diligence to learn how to do it better. We are thankful for the book, for what it teaches,—especially for what it suggests. Some will find a ready apology for their own shortcomings in the general failure which the author affirms; others will be stirred to deeper thought and more earnest efforts for a fuller measure of success.

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* Treatment and Prevention of Decay of the Teeth. By Robert Arthur, M.D., D.D.S.

The proposed plan is not confined to certain forms or classes of teeth, but is put forward as "a new method,"—a substitute for filling.

The first point I make is, that the separation answers the desired end only in so far as it renders the surfaces self-cleansing; that is, the food, in the act of mastication, enters the first V, which is naturally formed by the rounded margins of the grinding surfaces (and by Prof. Arthur's plan is artificially enlarged), is forced past the double apex into the second V, at the cervix, where it lays in contact with the gum. If the space will admit sufficient food, of a somewhat solid character, it will cause pain in the gum, thus necessitating *change*, which generally secures *safety*. Then if we add a third V, with its apex pointing to the buccal surface, it would seem impossible to do any chewing on those teeth, or even to take fluid in the mouth, without changing the contents of those spaces. This is a very common type of bicuspid, and generally a clean, beautiful tooth. They are in contact only between the buccal cusps, and that a very limited point; yet we all know they are as subject to proximate decay as the flat or square type, such as are represented by Fig. 1. But Prof. Arthur does not leave them even here, with the point of bearing unchanged, but requires that the separation be "thorough, free from the grinding surface to the gum." p. 155.

Let us merely name some of the objections to this treatment:

First. It is unnatural,—it does not harmonize with the plan of the original Artist; and progressive dentists are increasingly inclined to follow the teachings and preserve the types Nature gives.

The first or outer V, in its normal condition, is small or restricted, apparently for the purpose of *preventing* the passage of food between the teeth, as well as to furnish the greater extent of grinding surface. Prof. Arthur's proposition is to enlarge that V so that the food, pick, tape, etc. *may* pass freely.

Second. The point of contact in the normal condition of the teeth is almost invariably *single*, and generally more limited in extent than can be secured by artificial separation. The point of bearing should never be removed, or, if removed, it should be restored. Go all around it; restrict or lessen it as much as you please; but if removed, it is an irretrievable injury,—there can be no possible compensation for it.

Third. The injury to the gums and process by the pressure of food in the act of mastication, and the violent pressing of the tooth in one direction, and the next instant in the opposite direction; the present pain and resulting periodontitis and probable absorption; the annoyance to the tongue by the artificial angles.

There is positively no weight in the testimony of a few patients to the effect that they experience no inconvenience: we have not yet to learn that people will get used to a mouthful of broken and decayed teeth. But if we are going to appeal to the people for their verdict, we have it already in the universal horror and undying dread with which they have regarded the practice for the past thirty years. It is often alluded to in this book as a prejudice. It is *testimony*, as sound as the other.

Fourth. The teeth generally do, and may be expected to, shift their position, unless prevented by antagonists. The movement will be in a direction opposite to the slope upon the grinding surface doing the most work. Sometimes it will be lateral, sometimes rotary; often both. In fact, a tooth will not stand alone, independent of companions or antagonists, when subjected to lateral pressure.

It would not seem necessary to inquire if the separation can be maintained when made at the early age required for the prevention of caries, before the teeth have all taken their position. See Figs. 28 and 33.

When after separation they come together again, as Prof. Arthur says they "not unfrequently do" (p. 98), and "they are liable to" (p. 156), we are almost sure to have a broader surface in contact, perhaps more than one point, and certainly a narrower space at the cervix, the very place where the space is most needed, and where the very act of coming together produces pressure and consequent absorption,—the difficulties of inspection being thus immeasurably increased. But our author says "cut again" (pp. 98 and 156). Why not as well say "fill again," or repair? If timely, it would be as easy and as sure.

If there is any complication of difficulties to be dreaded, it is such as arises from separations and shifting.

Fifth. Another but slight objection is the fact that exposed dentine always discolors.

Sixth. It is unnecessary; there are two plans, either of which is better. First, the care on the part of the dentist and the patient which Prof. Arthur requires (p. 159), if timely applied, would probably secure the desired results; second, there is a better plan of separation. Judging from experience in my own mouth and in practice, if my teeth were to be treated by cutting away anywhere for the prevention or arrest of decay, I would prefer it should be done by enlarging the inner or second V, leaving the grinding surfaces intact. This plan would give space where most needed; would more readily reach the point where decay commences; need not endanger the pulp; the surfaces could be as easily inspected; there would be no change of position; there would be no angles and less cut surface; it can be easier done; there would be no inconvenience in mastication; properly done, the gum would probably not change its relation; and finally, it would be quite improbable that so large a quantity of bread and potatoes would be wasted in the mouth of any patient who had passed under the hands of a faithful dentist. This I propose and practice as a substitute for Prof.

Arthur's plan for *prevention* and the removal of incipient proximate decay. But let us try again the filling plan, pronounced by Prof. Arthur a failure, as applied to the proximate surfaces of the bicuspids and molars.

Imperfect operations are a more prolific source of failure than all others combined. This is a fact which can be demonstrated. To enter into the details at present would be too tedious.

Remove one of those fillings in a mass where decay has recurred, and examine it with a glass. In one case it is imperfect preparation; in another, imperfect packing; in another, injury to the walls in packing; in another, it is not properly finished. Now, all these imperfections can be avoided, and should be, rather than resort to the new method.

Another source of failure of fillings in this latitude, still more prolific than "uncleanness," is a lack of full and complete restoration of the crowns, even in what are called "contour fillings." The space at the cervix is contracted by the teeth coming together, producing soreness, and, by reason of tenderness of the parts and lessened space, *preventing* cleanliness. In this manner we incur to some extent the evils of the "cut-away" plan. We establish a set of circumstances calculated to result in decay: whereas, if there is full restoration, there is less probability of decay than in the original condition, for the simple reason that the point where it has occurred, and generally does occur, is now occupied by an undecaying substance. It did not in that particular case originally, and does not generally, commence to decay at any part of the line now occupied by the margin of the filling. The simple fact that decay recurs is sufficient evidence of an imperfect operation, or the result of the cut-away plan and coming together again.

But Prof. Arthur requires even for the success of his plan that the tape must be used "several times every day" (p. 159), and "carefully examined at short intervals" (p. 157). Haven't we reason to believe that with *such* treatment decay would *never* occur, even on the proximate surfaces of bicuspids and molars?

On page 95 we are told that it is not "the slightest disfiguration" to cut away the incisors. A clerical friend, whose eye lit upon the proposition, remarked, "What a pity the Lord did not know about that in the first place."

These teeth are provided by Nature with a thicker, heavier portion of enamel, and especially the linguo-proximate portion, often somewhat in the form of a scroll, with more or less of a depression in the centre, or between the two enlarged portions of enamel. The distance between these two extreme points is as great or greater than between the two points immediately anterior, often a little depressed, being the exact points where decay is expected to make its attack. Can we claim that there is no deformity when this mass of enamel is removed, which was placed at this particular point to sustain the cutting edges (which are very likely to be already checked, and so often break away), and to furnish a triturating surface in occlusion with the points and anterior surfaces of the inferior incisors, as important as the grinding surfaces of the molars? When the natural relations and conditions are changed it *is* a deformity, and the cutting away of the front teeth at these points is a deformity both seen and felt. The front teeth, as well as the bicuspids and molars, are formed to protect the gums. The gums will bear to be wounded, but will not bear an unnatural, continued pressure.

On page 169 the author says, "What I propose is the separation of teeth closely in contact, which are of such frail character, and are exposed to such destructive influences, that their decay is inevitable, or has already occurred." This proposition may be met in this manner: 1. The care the author *requires in any case*, as a *sine qua non*, will very generally answer the saving purpose without any operation. 2. The teeth are never in actual contact except at a small point,—the most projecting part of the crown. 3. It is folly to remove the only points of contact when contact is necessary and inevitable. 4. Lessening the point of contact, while enlarging the space already too small at the cervix (the second V), will give all the advantage which can be *secured* by any means.

But our author speaks of leaving projecting dentine near the gum (p. 158). How are you going to get projecting dentine near the gum, and what will be the shape of your tooth by the time you get it? Where is the gum and the process by the time the dentine of the two teeth come in contact?

Again, how certain are we when we determine "that decay is inevitable!" How often do we see cases where the "destructive influences" have been removed and the "frail character" no longer appears!

I have endeavored to state the reasons of my conviction, based upon theory and practice, that the plan of artificial separation of the teeth as proposed in this book is not necessary; is not the best treatment; and is a failure.

## CHAT WITH A STUDENT.

BY DR. G. W. ELLIS.

Since the election of dentistry as your future calling, you very naturally inquire what advantages and disadvantages are likely to accrue from its faithful pursuit, and what will most certainly promote the possession of its choicest fruits,—viz., self-approval, appreciative patronage, and pecuniary emolument.

Before entering fairly upon your scientific journey, it is undoubtedly well to pause and take a general survey of the road beyond; acquaint yourself, if possible, with its better features, that you may profit by them,—with its dangers, that you may circumvent them,—and, if practicable, secure a glimpse of its probable *termination*,—the enticing goal,—the hope of reaching which so powerfully sustains and lures one on.

There are those who pursue study in whatever direction it may tend from the love of knowledge alone, and with the view of becoming universally erudite. Such individuals are, however, exceptional, and the rare gift which thus induces such close and advantageous application is possessed by but a favored few. The stern necessities of life mostly preclude such unrestrained communion with science; and where a profession is selected, the interest with which it becomes invested is derivable in a great measure from the fact that it is to prove the means of livelihood, and the desire to excel is *too frequently* attributable alone to the consciousness that with proficiency comes patronage.

How distressing it is to the lover of science to see the possessor of an inherited or even an acquired fortune squandering, for the gratification of weak and frivolous appetites, what could be made instrumental in exposing error, establishing truth, and facilitating discoveries of inestimable value to mankind!

I would not have you infer that I affiliate with those members of our profession who, in their enthusiasm, advocate the performance of operations from the delight experienced in the "doing of a good work" and the conferring of honor upon a noble calling, thus, in a measure, philanthropically losing sight of remuneration. Such policy I deem more susceptible of theoretical than practical indorsement, and I am uncharitable enough to question the candor of any who proclaim themselves its adherents.

It is the recognition and blending of the two claims, that of the patron and that of the patronized, that enables you to properly appreciate and discharge your duties, while the compensation received *should be* the "reward of merit," as necessary as acceptable, and an unquestionable stimulus to the performance of a high order of operations.

To such as derive pleasure from constantly adding to their store of information, dentistry will perhaps offer as inviting a field as any other branch of the healing art; and although its character as a *profession* is of comparatively recent establishment, *established it is* (thanks to the untiring efforts of a devoted and energetic few) upon a firm and enduring basis, and is each day extending its influence and obtaining a closer hold upon the confidence and affections of the people.

Again, to those aspiring to honorable and useful positions in society, dentistry presents inducements; for to what more honorable, useful, or commendable purpose can the energies of a man be directed than in endeavoring to relieve the pains of suffering humanity, in carrying comfort to the afflicted, and securing health to the diseased?

The literary and scientific attainments essential to insure a man's fitness for the creditable discharge of the various duties demanded of the dental practitioner are of no mean nature, and it is necessary to comprehend at the outstart the utter falsity and narrowness of that view, which restricts the labors of the dentist within the confines of mechanics. Nothing is more fatal than to commence with such ideas. It is well to bear constantly in mind the necessity of first storing the intellect with principles and truths, when the hand, with practice, may be intrusted in executing the designs of the head.

It is the contracted view referred to which, fostered by ignorance and favored by obstinacy, envy, and indolence, has so long and so effectually checked anything like progress. Each day's labors were but a repetition of the preceding; the same duties with the morning commenced, and with the evening the same routine completed. Without incident to sustain interest, energy declines, and the *ennui* thus nourished and promoted by monotony is the canker that has destroyed many an intellect, which, under more favorable auspices, would have revealed qualities valuable to others and creditable to itself; it is this depressing element against which the progressive portion of our profession has had to contend, in addition to the many barriers to be attacked and demolished by those who initiate innovation. When, however, the expediency of reform was once established, the movement progressed, through its intrinsic merit; and although we may not count the worthless and empirical *less*, we find gratification in noting large increase in the numbers of intelligent and scientific dentists.

Cultivate, then, an aversion to deception and empiricism, harmonize personal and professional interests, and resolve to attain proficiency. Now is the time to commence as you would desire to continue. Meet boldly all responsibilities, for difficulties boldly confronted are half overcome, while timidity but magnifies their proportions, and so demoralizes both inclination and ability as to leave them vanquished with a few rebuffs.

Education and refinement beget a taste for like accomplishments in others, and a distaste for ignorance and vulgarity. When possessed, they insure one without the influence of further capital a creditable standing in society; and the dental profession, without further recommendations, will assign one a position with men of science and culture, whose influence will be felt in promoting mental, social, and pecuniary advancement.

It is really the little side events which exercise such a powerful controlling agency over a man's destiny, and imperceptibly lead him into honor or dishonor; insidiously determine him a capable and worthy practitioner, or an ignorant and ignoble charlatan, and direct the character of a practice, whether it be of an agreeable, appreciative, and compensative nature, or disagreeable, unappreciative, and miserably remunerative.

If there be an attractiveness in *variety*, here we discover another inducement for engaging in dental practice. To the mind thirsting for knowledge, and contented only when absorbed in investigation and experiment, the regular routine of most mercantile and mechanical avocations is insufficient to inspire *energy* and *interest*,—the necessary elements of success. How different in the practice of medicine or any of its specialties, where no one hypothesis or dogma, or set of either, can be memorized and relied upon as the "open sesame" to unfold all the intricate and mazy pathways of science, or pronounced as a mandate, quieting all conflict and confusion of ideas, and producing order out of chaos! You can even now comprehend the impossibility of framing a rule or set of rules which can be made universally applicable in the treatment of dental disease; and if it is not now so apparent, a very limited advancement in your studies will suffice to convince you of the worthlessness of such philosophy and the ignorance or viciousness of its propounders.

In practice we are favored in not being obliged, like the pioneers of our specialty, to work in the dark as it were, depressed with unexpected failure or disaster, and correspondingly elated with equally unanticipated success. Through the labors of enterprising authors we are enabled with ease to scan the records of the past, apprise ourselves of the truth, and adopt it as a guide,—review the error, and cautiously avoid its repetition.

Facts are first requisite to constitute a basis for the establishment of theories, which can be correctly formed only by careful deduction therefrom; and since facts enough have never been collected to insure the adoption of a theory universal in its application in the practice of medicine, of course a similar deficiency exists in dental practice, where the same broad principles are employed, and vary simply in being made specially subservient to the treatment of the oral and dental tissues.

There are many links requisite to complete the imperfect chain of information we possess in relation to that most wonderful mechanism the "human organism." We have, through the agency of the most accurately and beautifully constructed microscope, been enabled to discover the cellular origin and organization of all tissue, to penetrate still farther, and examine its contents, its nucleus, and nucleoli; and yet, with such fine scrutiny, the force which generates and controls all this development (life-force), of whose advent we are unconscious, upon whose habitation we cannot intrude, of whose workings we are ignorant save by their results, and whose departure is so swift and mysterious as to leave no trace of its presence, still remains a mystery, whose satisfactory solution, so important, seems a problem sealed to all wisdom save the *divine*.

Notwithstanding this ellipsis, a sufficient number of facts have been compiled to furnish us with an excellent (if not perfect) guide,—a familiarity with which enables the practitioner to combat, with a tolerable surety of success, the vast majority of pathological conditions demanding his interference.

From these observations, you will perceive that the practice of dentistry cannot by any means be viewed as an accurate and unerring science; on the contrary, it is really but in its incipiency. Failures accompany successes, and we are obliged to bear opprobrium with emulation; yet we find encouragement in the consciousness of a marked diminution of the former and a multiplication of the latter as we add to our knowledge the enlightenment of each year's experience. Now, as you are acquainted with these deficiencies of dental medicine, you should not harbor too great expectations, lest you meet with disappointment, nor yet allow a skepticism of its real merits, which would prevent your doing good when the means lay within your control.

There is a certain class of the community who know but half the truth, and actuated by the possession of a little knowledge, a "dangerous thing,"—which in their contracted calibre becomes invested with immense importance,—in their wisdom they pronounce medicine and dentistry "humbugs," sustained through the credulity of a gullible people, and ignore their claims to anything approximating science. We may remark (parenthetically, however) that, despite their antipathy, when ailing, they are the first to invoke the aid of what in health they affect to despise,—the services of the dentist, physician, or surgeon.

Uninfluenced by any such opinions, upon the most superficial examination we become impressed that dental surgery is not a pretense, and can deduce proof of the fact from the character of its practitioners, who are among the respected and admired of society, from the vast good that has been accomplished through its instrumentality, and from the implicit faith we ourselves entertain, evidenced by our readiness, when occasion requires, to submit to the same treatment we advocate for and practice upon others.

Speaking of variety, we can with truth pronounce each case, either in the operative, surgical, or mechanical department, different from all others; and although certain general features may indicate its membership of a special class, other marked individual characteristics will determine a diagnosis, prognosis, and plan of treatment entirely dissimilar. It is this variety which constitutes one of its chief attractions. Each new case becomes as it were an enigma, challenging solution; and although furnished with fixed basal principles for our guidance, their correct application often taxes the finest powers of discrimination.

We are dealing with living and constantly-varying organisms, each possessed of idiosyncrasies, the consultation of which is all-important in settling upon a plan of treatment; for it is not unfrequently found in practice that a remedy which has met the requirements in so many cases as to partially impress you with its infallibility will suddenly, without any evident cause, produce reverse results, and aggravate conditions which it formerly palliated or cured. It is such occurrences which test one's ability, and call to the rescue the best judgment and skill of the professional man.

Our resources for the relief of pain, the repair of decayed tissues, and the cure of disease are extensive, and, properly administered, will elicit an almost invariably uniform response. This comparative *certainty* is as beautiful to observe as it is delightful to experience, and affords the operator a feeling of satisfaction which goes far towards counterbalancing the little annoyances and vexations incident to dental practice.

There are some diseases which, after a certain definite course, will spontaneously subside; these it becomes our duty if possible to curtail. There are those attended with pain of more or less severity; these we are called upon to palliate. There are those whose tendency is to extended involvement and disintegration of contiguous structure. Such we must strive to arrest; and even in those cases universally recognized as *incurable*, it is possible to afford much comfort by the employment of ameliorative agencies.

It is that tendency of disease, not only to disappear when entirely neglected, but even to yield in opposition to injudicious and often very improper treatment, that secures for the charlatan such recognition and patronage as he may enjoy; and not unfrequently the pretender, despite miserable failures, blind bunglings, sufferings protracted, and diseases confirmed, succeeds in procuring a pecuniary position vainly aspired to by a skilled and conscientious neighbor. Nevertheless, a fair recognition of the services of Dame Nature, and a modest estimate of one's own ability, must in time secure the just recognition, appreciation, and reward certainly accorded to truth and merit.

# MAGNETISM.

BY H. NICHOLS WADSWORTH, D.D.S., WASHINGTON, D. C.

DURING the month of March, 1871, I was consulted by one of our most eminent and skillful physicians and surgeons, who has long been a resident of our city, regarding a young lady patient, from a neighboring city, whose teeth required attention.

She had been placed under his skillful treatment several months previous, in a most terrible condition of mind and body, from a disorganized condition of her digestive organs and a loss of nervous power. A complete cure had been the result of his skillful treatment; and one of the most potent agents in effecting this cure was magnetic power as given from the human body!

A complete history of this case, if I were permitted to give it, would, from the magnitude and disordered condition of her system (several eminent physicians of a neighboring city having in vain endeavored to afford any relief), prove a most interesting history, showing, as it does, the wonderful efficacy of the agents employed in her serious and dangerous condition. But the modesty of my friend is as great as his skill, and I am not permitted to give names, or enter into details, except in relating the history of my own connection with the case, in my own specialty.

The desire of my patient was to have the entire upper teeth removed; but I succeeded in dissuading her from this great sacrifice, and she decided, on my recommendation, to lose but four. I have forgotten now the particular ones, only remembering they were three of the front superior teeth and one bicuspid; the last, a very solid root, giving no hold with the forceps and requiring to be removed with elevators. The great point with my friend was to induce that magnetic condition of his patient that should enable him to command and control completely the nerves of sensation, whilst the other organs should remain in full activity; this he accomplished successfully; taking his patient by the hand and looking in her eyes, he told her she should feel no pain, be conscious of no uneasiness. I commenced by thoroughly lancing around each tooth, and never did I perform that operation more thoroughly, or more to my satisfaction; not a nerve quivered or a muscle moved, and our patient declared she "felt not the slightest sensation of pain." She cleansed her mouth with water, and after resting and chatting pleasantly a few moments, she was prepared in the same way for the first extraction, and the tooth removed quietly and without any haste, without an evidence of pain. At its termination she exclaimed, "Oh, I am so glad; I did not feel the least bit of pain! I am not afraid to have them all removed;" which was readily done, one after another, each tooth being very firmly set, and requiring a determined effort to remove. The bicuspid, remaining until the last, I removed with strong elevators, applied anteriorly and posteriorly, and requiring some time and severe digging to accomplish. At the termination our patient remarked, very quietly, that she "had experienced no pain!"

These operations were all performed with the utmost deliberation; the fear of pain on the part of the patient being entirely removed, gave liberty to free and easy manipulating, which, with any of the other anæsthetics, is impossible—hurry, to a certain extent, being always an attendant. I have never in my practice operated with so much pleasure, and I have never seen a patient who appeared to be so much pleased.

The question arises in the mind of every reflecting man, Is not this powerful agent ever to be brought under control, so that we can apply it in all cases for the relief of the human family? I feel no hesitation in answering this question in the affirmative. Already it is a well-established fact that it can be applied to any of the organs of the body, stimulating them to action, and with marked beneficial results. All human bodies, when suffering from disease, are, electrically speaking, in a negative condition, and can be successfully impressed by the magnetic current from the hands of a positive person who understands the manner of directing the current of human electricity; indeed, two human beings, one of whom is negative and the other positive, cannot come in contact without an equilibrium being established. Hence the fearful exhaustion members of our profession suffer in the loss of magnetic force, extracted from us by our negative patients. Who among us has not felt the debilitating effect of operating for a couple of hours on a weak, nervous patient?

The laws governing this subtle agent are but little known; but when they are better understood, we shall have an agent at our command at once the most powerful and simple, easily directed, and thoroughly under control, whilst giving results of the most positive and undoubted character, yet affording them in the most pleasing, gentle, and satisfactory manner. Time, that great necessity in the development of all great principles, is steadily opening the unexplained book to our eyes, and one physician after another is seizing hold of new and heretofore unemployed agents and elements in the treatment of disease, and producing results of the most astonishing and satisfactory character. Let him who is wise open the door of his understanding and let in the light that is dawning on the medical profession of the nineteenth century; nor join those who, in their determined blindness and uncharitableness, their fixed and conceited notions, give rise to the remark, "It is true, doctor, as the word of God, but it won't do to tell! The profession won't accept or allow it to be believed."

## REPLANTING TEETH.

BY G. V. N. RELYEA, BELLEVILLE, CANADA.

I PROPOSE giving very briefly my experience—successes and failures—in replanting teeth. Within the last year I have replanted seven teeth, with the following results:

*Case* 1.—A young man, about twenty-two years of age, consulted me about his left lateral incisor. It was evident that there was suppuration, and he was fully determined to have the tooth out. I removed it, and a copious flow of pus took place. The pain having somewhat subsided, I thoroughly cleansed the fang, syringed out the socket, and in about one hour from the time of extracting, I put the tooth back, and gently held it in its original bed for a few moments, and discharged my patient. Two days after I met him in the street, with a cigar in his mouth, and on inquiring the condition of his tooth, he said (after gently tapping it with his finger), "I guess it is all right, except being a little tender." I saw him again yesterday, now just twelve months, and his tooth is sound.

*Case* 2 was substantially the same as Case 1,—a left lateral incisor,—and the treatment was with a weak solution of carbolic acid. The patient is a merchant in town. I see him almost daily, and the result is very satisfactory.

*Case* 3.—A young man, and a resident,—the tooth a central incisor. This was a simple case of periostitis, and could have been treated without extracting but for the determination of the patient to *have his tooth out*, and I was well satisfied that unless I took it out then and there, he would soon find some one else who would. I treated the fang, put two gold fillings in the crown, and replanted; but, owing to the swollen condition of the lining membrane, the operation was very painful. On my patient reporting himself the ensuing day, I found the swelling quite subsided, and the tooth had resumed its natural position. The patient reported having slept well, and remarked that his tooth was not even tender under pressure. The operation promised well, and did indeed progress admirably, until the fourth day, when it commenced to pain, and during the night he extracted it again, and did not report to me until too late to make any further experiments.

*Case* 4.—A Methodist minister, about thirty-five years of age. Extracted the second bicuspid upper maxillary, and, after the ordinary treatment, replanted. My patient went immediately on the cars, traveled twenty-five miles by train, twenty more on horseback, and after an absence of four days, came into my office with a peculiar smile on his face, with the tooth in the palm of his hand. He remarked that if the tooth had been in the lower jaw he was sure it would have been successful, and I then first discovered the want of its antagonist. The whole operation was hurriedly done, he being fearful of missing the train.

*Case* 5 was a servant-girl; the tooth an upper left canine; a case of ulceration; the treatment and success the same as Cases 1 and 2.

*Case* 6.—A dentist and former student, now practicing in a town twenty-five miles distant. The tooth was a left lateral incisor, which he had repeatedly filled with amalgam, and was as often obliged to remove it immediately. I extracted it, put in three amalgam fillings, treated, and replanted, but, after suffering for two or three days, he again extracted it.

*Case* 7.—A countryman, about twenty-five years of age; face swollen from disease in the left upper canine, which my assistant had filled with tin foil about about two years before. After a thorough examination of the case, I concluded to remove the filling, which I found had been well done, and was difficult to remove, owing to the soreness of the tooth. I endeavored to pass a broach up through the passage, but was unsuccessful, and finally extracted. The sac came with the tooth; the case was treated in the usual manner. The patient remarked that if I was determined to put it back he wished I would cut a piece from the crown, as it had been too long for some time. I explained that I had cut off the fang, which would answer every purpose. This seemed to satisfy him, and the tooth was replaced with very little pain, and my patient started for a drive of fifteen miles in the country; if this is a success I shall be agreeably disappointed.

*Later.*—I have received a note from my last patient, Case 7, and he says my tooth is a perfect success.

It will be observed by the foregoing that, out of seven experiments, four have proved a perfect success. I forbear making any remarks, and will leave readers to draw their own conclusions.

## PRICES.

BY GEORGE S. FOUKE, WESTMINSTER, MD.

With the custom now so prevalent of competitive low prices confronting the profession, and paralyzing all generous efforts at professional excellence, it is but fair to assume that many, with no adequate conception of the vital character of the question of prices in dentistry, are doing much to degrade a noble art, and to impair permanently its highest usefulness.

A review of dental prices would be substantially a history of the rise, progress, and respectability of the profession, exhibiting conspicuously the important fact that all the best interests of the profession have been, and are still, indissolubly connected with a firm and dignified adherence to a fair remunerative schedule of prices.

The writer is willing to make his humble confession that he has always been practically on the side of moderate prices, erring in favor of his patients when making up his charges. Had he studied prices more, the retrospect of a full quarter of a century in the profession would be decidedly more pleasing. But "to err is human."

The error we commit in the matter of prices is the result evidently of a want of due reflection and examination of the subject. It is felt to be a subject difficult to treat of; yet it would be well to give it serious consideration, and to use every honorable means to rescue a useful profession from a sure decline, threatened by the growing evil of a too general adoption and consequent permanent establishment of low and unremunerative prices.

The fallacy of *low prices*, in contradistinction to *remunerative prices*, would be best shown by making an approximate analysis of our operations. Thus, take the insertion of a plate with one tooth or more, or the filling of a tooth; by analyzing the remedial and operative agencies entering into the operation, and by estimating the value of "skill, taste, time, cost, and risk," the mind will be better able to adjust a fair price for services rendered.

The chief object we desire to accomplish in this brief article is to try and show the *lowest* price of a few operations, consistent with a just recompense for the work, and to arrest the attention of those who are putting prices down, to the injury they are doing both to themselves and the profession.

Analysis of a plate with ten or more teeth, showing the lowest it can well be done for: (*a*) Extraction and impressions, $4.00. (*b*) Making casts, fitting teeth, and modeling base, $3.00. (*c*) Making moulds and packing rubber, $1.00. (*d*) Vulcanizing and finishing, $2.00. (*e*) Cost of teeth, rubber, license, etc., $5.00. (*f*) Value of time, skill, taste, and risk, $5.00. These several items (which are certainly reasonably low) amount to twenty dollars for a plate of ten or more teeth. We are pe suaded that no dentist can afford to do the work for a less sum, and realize a fair profit for his work.

In the operative branch it is more difficult to analyze. But we shall close our remarks upon this subject by attempting an approximate analysis of an ordinary gold filling, keeping the price down to the lowest figure possible:

(*a*) Excavation and preparation of cavity, 50 cts. (*b*) Inserting gold, 50 cts. (*c*) Finishing plug, 25 cts. (*d*) Cost of gold, 25 cts. (*e*) Value of time, skill, taste, and risk, 75 cts. Making an ordinary gold plug, $2.25,—a fee that would afford only a fair profit.

Dr. Harris considered $3.00 too low a charge for average gold fillings. He expressed the opinion that full employment at that rate of charge would impoverish the dentist.

## NITROUS OXIDE—A CASE IN PRACTICE.

BY W. H. WAITE, D.D.S., L.D.S., LIVERPOOL, ENG.

On the 11th inst, Mr. E. B., of Albany, N. Y., called upon me to have three roots removed from his lower jaw, they being inflamed and suppurating. By his request the gas was administered, but apparently with little effect. Special care was taken to keep the inhaler well in place, and prevent the admission of air; the inhalation was protracted to more than double the usual time; still, the breathing was natural and quiet, and consciousness was fully maintained. After becoming fairly assured that there was slender hope of producing anæsthesia, the inhaler was laid aside and the roots removed, the patient evidently being well aware of what was going on. Between seven and eight gallons of gas had been used to no purpose.

Upon inquiry, it transpired first of all that Mr. B. was suffering from general exhaustion, consequent on over-expenditure in the pursuit of business, during six or seven years past. He stated, *e.g.*, that during 1871 he only spent twenty-three nights in his own house, the balance being chiefly passed in sleeping cars. Then it came out that chloroform had been administered to him twice without depriving him of consciousness, and that mesmerism also had repeatedly failed in producing any effect. To quote his own words: "I never was controlled for a minute in my life by anything whatever of the kind." He described the effect of the gas as a "sort of swimming in the head, but nothing further."

I searched in vain for any more satisfactory explanation, and as if to save me the trouble of overhauling the apparatus, a lady came in shortly after, and desired to have the gas; who was supplied from the same gasometer, by the same inhaler, and precisely in the same manner, and who presented, in every respect, the most complete success that one could possibly desire. The gas was not by any means stale, more than half the meter having been filled that same morning direct from the washing bottles. This case is recorded as it is believed to be extraordinary, and will perhaps interest some who, like myself, are in general practice, and have therefore occasionally to use the gas.

10 Oxford Street, Liverpool, January, 1872.

## FILLING TEETH OVER EXPOSED PULPS.

BY S. G. ROBERTSON, CUTHBERT, GA.

Much has been said upon this subject, yet it is not exhausted by any means. After several years' practice, I found my labors were not proving as successful as I desired, and in casting about for some plan that would induce better results, I adopted, in the first place, the practice of others, in the use of oxychloride of zinc as a capping. I found this did not prevent bad results in every instance of exposed pulp. In the second place, I tried sheet-lead, placed immediately over the exposed pulp. This proved to be more successful than the os-artificiel; yet, in large cavities, where a large cap was necessary, the galvanic action was too great between the two metals. I then tried Hill's stopping, which

I now use, almost exclusively. With teeth that have ached only a short time, I remove the decay; swab out the cavity thoroughly with carbolic acid; then lay over the pulp a thin sheet of lead; then press a small piece of Hill's stopping, warmed, over the cap and around the walls of the cavity. After a few minutes, I remove the Hill's stopping with excavators, leaving only enough of it to cover the lead cap; then proceed to fill the cavity with such material as I desire. I have not lost a single tooth with this treatment. I find many teeth filled by others with metal after several years with a good layer of dentine covering the pulp, though not sufficiently thick to prevent it taking on inflammation, through the filling, because of its conducting power. In all cases, except in superficial decays, I use a shaving of Hill's stopping, the thickness desired according to the depth of the cavity, and cut in a shape to suit its floor as a capping. This non-conductor prevents any inflammation, and lessens the period of sensitiveness, after filling, from contact of hot and cold fluids or food. As is often the case, a sudden transition from hot to cold gets up trouble, unless some such precaution has been used.

# PROCEEDINGS OF DENTAL SOCIETIES.

## ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

AT a meeting of the society, held January 10th, 1872, in the Philadelphia Dental College building, 108 North Tenth St., Professor C. A. Kingsbury, D.D.S., M.D., read the following paper:

### ARSENIOUS ACID AS A REMEDY FOR SENSITIVE DENTINE.

The value of arsenious acid as a devitalizer of exposed pulps has long been known to the dental profession.

We are indebted to Dr. John R. Spooner, of Montreal, for the discovery, and to his brother, Dr. S. Spooner, of New York, in 1836, for the promulgation of its valuable properties and the manner of its application.

I do not propose to consider the use of this well-known therapeutic agent in its relation to the treatment of complicated dental caries, but rather to call attention to some of the evil consequences resulting from its employment as a topical application to obtund sensitive dentine.

Those who desire information in regard to arsenious acid—its properties, its combination with other substances, and the history of its use by the dental profession as an efficient nerve devitalizer—I would refer to a very full report of discussions on this subject (embracing quite a lengthy and exhaustive paper of my own), published in vol. iii. of the DENTAL COSMOS, 1861–62.

Among the various pathological conditions to which the hard tissues composing the human teeth are liable, not the least interesting and important is that just referred to,—viz., *exalted* sensibility of the dentine. There can be no dentist of much experience who has not found this condition under certain circumstances to constitute one of his greatest difficulties in dental operations, especially in that of preparing the cavity for filling.

A certain author says "there is but one diseased condition of living dentine anterior to decay that presents any considerable difficulty in the ordinary operation of filling teeth, and that is inflammation or exalted sensibility.

"Whether or not this affection is *real inflammation*, is a point that has been considerably controverted; and the assertion has been made that it is of no consequence whether it is or not, provided we understand the true method of treating it. That it is true inflammation, is the opinion of our best dental writers. The dentine is endowed with the functions of *absorption*, *nutrition*, and *secretion*,—characteristics that always imply a susceptibility of inflammation.

"In inflammation of the soft parts there are present various indications, as pain, redness, swelling, and increased heat; but in dentine, on account of its peculiar structure, all these indications cannot be manifested; for instance, redness, since the red globules do not circulate through it; nor swelling, since the structure is too dense; nor perceptibly-increased heat, since the circulation is of too low a grade. But one of the most definite indications of inflammation—namely, exalted sensibility—is present here in all its force. The character of the affection is modified by differences in the organic structure of the teeth, those most vascular and most highly organized being most readily and most extensively involved; and, therefore, the teeth of the young are generally more liable to it than those of the old."

Inflammation of the dentine will sometimes be exhibited in various degrees in different teeth in the same mouth at one time. This is owing to differences in the organic structure of teeth developed at different periods of life,—to differences of their location in the mouth, and to differences of exposure to those agencies which are apt to induce the condition. This extreme sensibility, which gives rise to the most excruciating pain under the excavator, is sometimes limited to a certain point of the cavity of decay. Perhaps it may be a thin lamina immediately beneath the decomposed portion, or to a point of union between the enamel and dentine, while at other times, and in other cases, it seems to involve not only the entire cavity but the entire crown of the tooth.

Various and conflicting opinions have been entertained in regard to the etiology or cause of the pathological condition under consideration. But I think that a correct knowledge of the histological characters or structure of dentine will enable us to solve all the apparent difficulties, and clearly to understand the interesting phenomena, both pathological and physiological, pertaining to this painful affection.

The structure of the dentinal tissue since the discoveries of Leeuwenhoek, in the seventeenth century, has been admitted by almost all eminent histologists to be tubular. Permit me to give you the words of the distinguished German observer. In the Philosophical Transactions of 1678 he says: "I have some time since applied a glass (esteemed by several gentlemen who had tried it a very good one) to observe the structure of the teeth and other bones, which both to them and myself also then seemed to consist of globules; but since then, having drawn out one of my own teeth, and, for further observation, applied better glasses than the former, the same gentlemen with myself agreed, from what we plainly saw, that the whole tooth was made up of very small straight and transparent *pipes*." Now, this tubular structure of dentine has been confirmed and—may I not say?—demonstrated by the subsequent observations of careful and reliable histologists down to the present time. The *nature* and *office* of these tubes received the special attention of Mr. Tomes, and I regard his views, based as they are upon the most thorough observations, as the soundest and most philosophical that any writer has advanced; and the more I have examined into the subject myself, the more fully am I convinced that his views are correct. These tubes, according to Owen, the great odontologist, are about the $\frac{1}{10000}$ of an inch in diameter. They proceed from the pulp cavity to the outer surface of the dentine. As to the contents of these tubes, there have been differences of opinion. But I think it has been clearly demonstrated that the substance contained in these tubes (whether it be called dentinal fibrillæ or be designated by some other term) subserves the twofold purpose of *nutrition* and *sensation*. On any other theory it is impossible to account for the various phenomena manifested. It has been maintained by some that the dentinal tubes contained a fluid only; and for a long time I was inclined to adopt this opinion. The painful sensation produced in excavating a carious tooth was supposed to arise from pressure upon the partially decomposed and somewhat elastic dentine, and the tubes being filled with a morbid fluid, it was injected forcibly on to the substance of the pulp, making a painful impression. And the theory has some degree of plausibility in it, from the fact that when the decayed and softened part is entirely cut away the pain diminishes, or ceases altogether, as we might expect, when, having reached hard and healthy dentine, the parietes of the tubuli would be too rigid to admit of compression.

But a perfectly sound tooth that has been fractured slightly, so as to expose the dentine, is found to be extremely sensitive to thermal change or the least pressure or touch of the tongue upon the exposed surface.

And then, again, how are we to account for the great difference in the degree of sensitiveness in the several parts of the cavity of decay, the most sensitive point usually being near the peripheral surface of the dentine, under the enamel, where the fibrils terminate in a delicate plexus of sensitive tissue?

In many cases where these tenants of the dentinal tubes are invaded by that enemy and scourge of man's ivory structures, *dental caries*, a process of defense is set up, and these fibrils become the active agents for the transmission of solid material, in the form of various salts, for closing up the avenues of approach, and shutting out the invader by consolidation of their substance. In this condition dentine loses its sensibility, almost as effectually as when the pulp of the tooth is extirpated.

I deemed it important thus far to call your attention to the affection to be treated. Let us now consider briefly the remedy. It is not to be wondered at that numerous and powerful remedies have been used to allay this form of disease, so painful to the patient, and so trying to the dentist; the younger and more nervous the patient, the more acute his suffering and greater the difficulties to be overcome by the operator.

Perhaps the dentist never has his sympathy so fully excited and his patience so thoroughly tested as in the filling of teeth where this extreme tenderness exists. Among the many remedies resorted to for relief, arsenious acid has held a prominent place with some practitioners. It has, I am sorry to say, been recommended by some who ought to have known better. Its almost certain action in obtunding sensibility, in most cases, has constituted a strong argument in its favor; but that it is a dangerous agent for such purpose, has been demonstrated in many sad cases that have come under my own observation during the past twenty years. Those of you who have known me long, and the younger members of the profession who have listened to my instructions in this institution in years past, will bear me witness that I have invariably deprecated the use of any and all preparations of arsenic for treating sensitive dentine. When applied to a tooth in the form of the ordinary nerve-paste, or in the form of a solution, or in the dry state, it permeates the dentine, and causes the death of the pulp in many cases. It has long been known that such a result would be liable to follow its application, and yet I regret to say that too many in our profession use it with a lavish hand.

Among the many cases that have passed under my notice was the case of a lady who came to me recently desiring me to treat a number of diseased teeth. I found upon examining her mouth that she had several teeth in an abscessed condition, from which she had suffered more or less ever since they were filled. Upon inquiry, I learned that (the teeth being rather sensitive) in excavating the dentist had applied arsenious acid to seven of them, and subsequently filled them. The entire number were devitalized by the action of the arsenic, although the pulp was not exposed in any one of them. They were filled with gold, and were very much discolored, as might be inferred from the manner in which they had been treated. I was obliged to remove the fillings, cut through the septum of dentine, and open into the pulp cavities, remove the putrescent pulps, and treat the roots and bleach the teeth preparatory to refilling.

One of the central incisors was only slightly decayed upon its distal surface, and rather than cut through the thickness of dentine from the proximal surface, in order to remove the dead pulp, I opened into the pulp cavity from the palatal surface with a drill. I treated and filled the roots and crowns with gold, and a few days since, when I had a call from the patient, received renewed expressions of her gratitude for the services rendered. It is a rare thing to find so many victims of this subtle poison and bad practice in the mouth of one patient; and yet so many cases of this kind have come under my notice within the past year even, that I have been led to feel the necessity of some one giving a warning voice of admonition to the younger members of our profession against such a dangerous and fatal mode of practice.

I will cite one other case that came under my notice not long since. The patient was a young lady of sixteen, who some months previously had arsenious acid applied to the superior central incisors, for the purpose of diminishing the pain in preparing the cavities for filling. They were not badly decayed. But the escharotic had most effectually done its work. Acting through a thick septum of dentine,—whether by absorption, imbibition, or some other mode of transmission, I will leave for others to determine,—the pulp had been reached, impressed, and devitalized. Congestion of the pulp had evidently taken place, and that peculiar form of violent dissolution connected with the rupture of the red blood corpuscles, which sends the hematine through the dentinal tubuli, giving to the teeth that deep-pink color you have occasionally seen. The discoloration of teeth produced in this way is of all others the most difficult to remove by any of the bleaching processes known to the profession. After the most careful and persistent treatment, I found it impossible to restore the teeth to their normal shade and natural beauty.

In view of such results, how can we look upon this kind of practice without mingled feelings of pity and detestation!

In conclusion, permit me to express the opinion that although in careful hands, arsenious acid, when applied in minute quantity under the most favorable circumstances, and left in the tooth for only a very short time, might not lead to the fatal consequences attending the cases cited, yet the only safe course is to reject its use entirely for the purpose of obtunding sensitive dentine.

There are other agents equally as efficient and perfectly safe to be found in the dental pharmacopœia, and doubtless familiar to most if not all of you. The consideration of these agents at this time, although quite relevant to our subject, would rob our paper of perhaps its only claim to merit,—*reasonable brevity.*

## SUSQUEHANNA DENTAL ASSOCIATION.

The Susquehanna Dental Association held its fifteenth semi-annual meeting at Lewisburg, Pa., November 13th, 1871. President and Vice-President being absent, Dr. H. Gerhart was called to the chair. Fourteen dental practitioners were present.

The stated subject for debate, "Dental Caries," was taken up, and awakened an animated and interesting discussion, in which all participated, and the opinion was elicited that the extreme prevalence of carious teeth in our country is due to the habits of life and diet of the American people. From the remarks made, it was manifest that none deplored its ravages more than those who gain their livelihood in its wake.

A communication from the Harris Dental Association was read, and a resolution unanimously passed pledging our "aid and comfort" as an association and as individuals to them in aiding to devise ways and means to resist the extortions of the Dental Vulcanite Company.

Drs. H. H. Martin and C. S. Beck were appointed delegates to a State convention, if such should be called, with Drs. H. Gerhart and J. M. Barrett as alternates.

Drs. H. H. Martin and G. W. Klump were appointed a committee to procure and circulate petitions among dentists and citizens generally, praying our legislature to pass a law to regulate the practice of dentistry in this Commonwealth.

Perfect harmony and good feeling prevailed throughout the entire meeting.

Officers for the present year:

*President.*—John D. Wingate, D.D.S., Carbondale.

*Vice-President.*—J. L. Fordham, D.D.S., Scranton.

*Corresponding Secretary.*—F. J. Richards, D.D S., Williamsport.

*Recording Secretary and Treasurer.*—J. M. Barrett, D.D.S., Wilkesbarre.

*Librarian.*—H. Gerhart, D.D.S., Lewisburg.

*Executive Committee.*—Drs. Missimer, Vallerchamp, and Bessac.

The next meeting of the association will be held at Williamsport, Pa., May 15th, 1872, at which essays are to be read by J. L. Fordham, G. W. Klump, C. S. Beck, H. H. Martin, and G. W. Renn. Subjects for discussion, "The File" and "Extraction of Teeth."

J. M. Barrett, *Recording Secretary*

## DENTAL SCHOOL OF HARVARD UNIVERSITY.

The fourth annual commencement of the Dental School of Harvard University was held at the Medical College in North Grove Street, Boston, Mass., Wednesday, February 14th, 1872.

Dissertations were read by the following-named graduates:

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|---|---|
| Cecil Porter Wilson | Dental Caries. |
| George William Geist | Salivary Calculus. |
| James William Curtis | Dental Pathology. |
| Winslow Lewis Tucker | Modern Dentistry. |

The address was delivered by Prof. Oliver Wendell Holmes, M.D.

The degree of D.M.D (Dentariæ Medicinæ Doctor) was conferred by the President, Charles W. Eliot, LL.D., upon the following-named gentlemen:

| | | |
|---|---|---|
| Ames, George Henery | Providence, R. I. | The Effect on the General System of Diseases of the Teeth and parts connected with them. |
| Bancroft, Sidney Chapin | Lawrence, Mass | Object of Artificial Dentures. |
| Bartlett, Charles Samuel | Boston | Petroleum Naphtha as an Anæsthetic. |
| Bradbury, Edwin Perley | Boston | Dental Caries. |
| Bell, James Dias | Stuttgart, Ger | Dental Hygiene. |
| Clark, James Adkins | West Brattleboro', Vt. | Physiology and Pathology of Dentition. |
| Curtis, James William | Brunswick, Me | Dental Pathology. |
| Geist, George William | Paterson, N. J | Salivary Calculus. |
| Noyes, George Edward Langdon | Newburyport | The Oral Cavity. |
| Keyes, John Warner | Boston | Extraction of the Teeth. |
| Robinson, Frederic Miller | St. John, N. B. | Digestion. |
| Silva, Samuel Saiza | Fayal | Fractures of the Jaws. |
| Torrens, Benjamin Henry | Bangor, Me | Anæsthesia. |
| Tucker, Winslow Lewis | Boston | Modern Dentistry. |
| Wilson, Cecil Porter | Boston | Dental Caries. |

The number of matriculants for the session was twenty-eight.

The changes which have taken place in the government of the School during the past year are as follows:

Prof. N. C. Keep has resigned, and Dr. T. H. Chandler has been appointed in his place Professor of Mechanical Dentistry.

The Professorship of Dr. O. W. Holmes has been changed from Anatomy and Physiology to Anatomy only.

Dr. H. P. Bowditch has been appointed Assistant Professor of Physiology, and Dr. E. S. Wood Assistant Professor of Chemistry.

The clause allowing five years' practice to be considered as an equivalent for one term of the School has been abrogated, and a summer school has been established. This term is not to be counted in the conditions for graduation, but is designed as an equivalent in whole or in part to pupilage with private preceptor.

# EDITORIAL.

## ÆSTHETIC DENTISTRY.

In no department of dental practice does the want of that taste which indicates artistic culture become so manifest, as in the failure to restore the natural expression by the replacement of lost dental organs. It is unquestionable that the majority of the profession, engaged in this branch of practice, have given more thought and labor to the best methods of restoring impaired functions—securing comfort, usefulness, and durability in artificial dentures—than to the equally important question of correlation of the substitutes with the general physical characteristics of the patient.

To this account is to be charged the unseemly incongruities constantly staring the observer in the face from mouths whose lost organs have been replaced in disregard of this universal law.

No matter how anatomically correct, or how skillfully adapted for speech and mastication, an artificial denture may be, yet if it bear not the relation demanded by age, temperament, facial contour, etc., it cannot be otherwise than that its artificiality will be apparent to every beholder.

This law of correlation—harmony—running through nature, attracts and enchants us by an infinite diversity of manifestations; the failure to recognize its demands by art is correspondingly abhorrent to our sensibilities.

In the social gathering, a lady who appreciates the law of harmony, delights the eye by the taste displayed in her attire; another, though more elaborately and expensively adorned, yet failing to harmonize the details of her costume, attracts attention only by the impression of incongruity. We hear frequently from a lady who is selecting a bonnet, or from a gentleman purchasing a hat or other article of wearing apparel, the question to a friend, Does this become me? the query indicating the recognition that, however exquisite the material, or excellent the manufacture of the article, a certain law of fitness prevails, the failure to comply with which makes the wearer appear ridiculous. We meet in the street one the color of whose hair we expect, by the law of association, to be fair, or sandy, and if otherwise, a wig or a dye is instantly suggested.

There is a relation between the physical form and the voice, from which we are led to infer in advance the character of the tones which from any given individual may be expected. This law of association, in any case, having led us to anticipate a bass voice, the anomaly, should a falsetto greet us, is almost ludicrous.

So, not to multiply examples, the dullest observer learns instinctively the demands of this great law of correlation. The artist's success depends upon the extent of his perception of it. The botanist esteems it a guide-post in his investigations. The comparative anatomist regards it as a fundamental principle. The scientist, in every direction of research, knows its importance.

To the dentist, the extent of its recognition determines his status as a mere mechanic or an artist.

A broad, square face, or an oval; a large, coarse-featured man, or a delicately-organized woman; a miss of eighteen, or a matron of fifty; a brunette or a blonde,—these and other varieties present as many differing types, with teeth, in size, shape, color, density, etc., corresponding. If, then, teeth correlated in their characteristics to those which nature assigns to one class, be inserted in the mouth of one whose physical organization demands a different order, the effect cannot be otherwise than displeasing to the eye, whether the observer be skilled in perception, or intuitively recognizes inharmony without understanding the cause.

A careful observation and record of these distinguishing characteristics—correlations—would go far toward establishing prosthetic and æsthetic dentistry as "exact" sciences.

There is as rich a field thus opened, and as worthy of culture, as those which are attracting so many to microscopic and other investigations of the tissues; an opportunity as promising as that which incites others to perfection in structural prosthetics, and a reward in professional status and pecuniary remuneration, not less deserved than that which is accorded to superiority in any other branch of practice.

## DENTAL PERIODICAL LITERATURE.

The *Missouri Dental Journal* for January contains an article by Prof. Judd, "editor of the scientific department," from which we quote the following:

> "It is not a very favorable commentary upon the profession to say that it does not probably support to-day a single dental periodical in this country. The current periodical literature of the profession is at this day supported to a great extent by those who have something to sell to practitioners, and can therefore afford to publish journals for the sake of the advertising it allows them to do.

"That is to say, we buy our teeth, gold foil, amalgam, forceps, excavators, and current literature at the same shop and of the same parties.

"When this is not the case, the deficit is made up by the editors, who, of course, do the necessary labor for nothing. We do not complain of this, as we accepted the labor with a full understanding of all these things; but we allude to it now only to predict that this will some day be materially changed."

To which we reply, then "it is not a very favorable commentary" upon the professional, scientific, and business public, "that it does not probably support to-day a single" medical, pharmaceutical, scientific, or commercial periodical. "The current periodical literature" of every variety "is at this day supported, to a great extent, by those who have something to sell." In other words, it is a fact, favorable or otherwise, that there is scarcely a periodical published in the country that is supported entirely by its subscription list, independent of its advertising pages. Wherein, then, is the commentary unfavorable that a dental journal relies for its support in part upon its advertisements, and wherein is the difference, in the status and value of the journal, whether those advertising pages are used by the publisher, or by the general public, or by both, especially if the advertisements have relation to the needs of the profession to which it is devoted? The question is not, *where* is the literature of the profession purchased, but *what is its character?* If the manufacturer of dental requisites, by liberal remuneration to editors, can produce a better journal than one whose editors "make up the deficit" by doing "the necessary labor for nothing," what cause is that of unfavorable comment upon those who recognize its value? The truth is, the field is, as it should be, open to all; and whether "teeth, gold foil, amalgam, forceps, excavators, or current literature" be sought, purchasers desire to procure the best, whether it emanates from a "shop" or a college, and there is no justification for unfavorable comment upon their choice.

There is occasion, however, for unfavorable comment on the fact that so few of the profession are subscribers to *any* dental journal; and the inference is irresistible that the fault is not so much in the journals, as in the indisposition of a majority of practitioners to read the current literature of their calling. The best men in the profession are more likely to subscribe to two or three journals than to fail to take any. A majority of those who are not subscribers to any periodical devoted to their specialty would not be likely to read one if gratuitously sent. How to make the journals more useful to those who do subscribe for and read them, and how to stimulate the rest to a better appreciation of them,—these be the objects of our endeavor. Whoever contributes toward the accomplishment of this result, bid him Godspeed.

# OBITUARY.

We regret to learn of the decease, January 28, 1872, of Dr. B. T. Whitney, of Buffalo, N. Y., aged fifty-nine years. He occupied a deservedly high position as a man and a dentist, was active in the organization of the New York State Dental Society, and retained his interest in all matters concerning his profession to the end of his life.

# PERISCOPE.

## SELECTIONS AND ABSTRACTS FROM DENTAL AND MEDICAL JOURNALS.

"Hopeless Cases," so called.—The history of medicine abundantly proves that many of the so-called incurable disorders of the human system are not so in reality, but only apparently beyond the reach of restorative influence for the time being, from imperfect knowledge of their true character, the proper means of relief, and the recuperative power of nature; or, in other words, inability on the part of the practitioner or science to meet the emergency at that particular period of time. It therefore behooves the representatives of scientific medicine to keep steadily in view the principles of progress, and carefully study all so-called irremediable conditions with the measures applicable thereto for curative purposes, and not let such cases drift into the hands of mere empirics, who by chance experiment so often succeed to the discredit of the profession and science. As enlightened knowledge is necessarily superior to blind empiricism in medicine as in all other departments of investigation, every effort should be made to acquire it and extend the bounds of medical science to the fullest extent for the relief and cure of the many "ills to which flesh is heir." That every case of disease is a problem to be solved in accordance with mathematical and logical principles, and to be treated with scientific accuracy and positive certainty, is the avowed object of all study. Hence, to secure the highest possibilities of medical art, the treatment of all abnormities must be conducted with the positive precision resulting from a correct knowledge of the principles of biological science. These principles can only be determined by a profound study of the laws of life and by every method of research, speculative and experimental, deductive and inductive, as it is only by the combination of all that the best results can be obtained. Although much discredited, the *a priori* or theoretical mode of investigation is of great value, and often leads to brilliant discoveries, a recent striking example of which, in medicine, is exhibited in the now popular agent, chloral, the determination of the physiological influences and therapeutical applications whereof were elaborated by speculative research.

Hence, progress should be sought in every way and by all intelligent means of research, without regard to the seeming insufficiency of any, or impossibility of advancement beyond the present state of knowledge and power of art, for no one knows the range of even the probabilities, much less the possibilities, either in medical or general science. The recent rapid progress of all branches of medicine, particularly of the more immediate practical ones of hygiene and therapeutics, should encourage an intelligent confidence in further advancement, and excite more systematic investigation for still greater results, especially in view of the fact that so many of the apparently wildest dreams and fancies have become realities in all departments of life.

The natural history of disease shows that the most intractable disorders, both of an organic and functional character, even with such extreme structural changes as cancer, will sometimes resolve spontaneously by the unaided efforts of nature, and if so occasionally without extraneous assistance, it is reasonable to infer would do so more frequently by the aid of enlightened art,—indeed, have been thus removed. Hence, in the treatment of all so-called hopeless cases, intelligent and persistent effort should be made not only to relieve immediate suffering, but to correct derangement of every kind, and promote complete recovery, giving the patient the benefit of the doubt in every instance, by working steadily for a favorable result even in the most unpromising conditions, for though present resources may be inadequate, constant study will bring fresh inspiration, while the progress of knowledge may open at any time new sources of information, more efficient remedies, and better methods of treatment, equal to the emergency. Moreover, even if the immediate object be not attained, the experience will prove useful, as it will tend to enlighten the mind on correlative subjects.—*Editorial in Medical Cosmos.*

ACCURATE WORKMANSHIP.—Mankind is ready to accept as truth whatever is presented to them as a generalization. Formulate an idea and lay it down as a proposition, and nine out of ten will accept it as true, because five of the nine will lack the power to detect its falsity, and the remaining four will have too much indisposition to the mental labor involved in logical reasoning, to test whether the proposition be correct or otherwise. About four-tenths of the human race are mentally lazy, five-tenths are so credulous as to accept anything as a principle which is clothed in the garb of a generalization, and certainly not more than one-tenth think for themselves.—*Scientific American.*

WORK.—The medical profession has the opportunity of judging of the effects of work on the human system, and some of our brethren fall victims to excessive mental or bodily toil. It is of the greatest importance that this subject should be more commonly studied, for it ramifies in every direction in both preservative and curative medicine. The influence of work on health was the subject of the celebrated Bouchardat's two lectures before the Paris Faculty of Medicine as long ago as 1862, and no one has more beautifully illustrated it than this able professor of hygiene. In commencing his course, which was afterwards printed, he observed that one of the forefathers of philosophy—Plato—said that our body is impaired by rest and inaction, and preserved chiefly by exercise and motion. Rest will do harm to the mind as well as to the body. I purpose to demonstrate the truth of these principles. I hope I shall prove to you that man is preserved and rises by the harmonious exercise of both body and mind, and that inaction impairs him physically as well as morally. I think I am true to the purpose of the useful works of the Polytechnic Association, in trying and asserting by arguments borrowed from the most largely understood of health, that physical and intellectual labor is a necessity of human organization,—a condition of health, of morality, and indefinite improvements. That is a question of general interest, which will bring us to inquire into the most efficacious means of contending with our most implacable enemies,—spleen, misery, old age, and premature death ; of preserving as long as possible the attributes of youth ; and, last of all, keeping away the fatal hour to the utmost limit. To hit the aim I have just pointed out, it must be thought of for a long time, as it is easier to keep up a building in a good condition than to raise up again a ruin. In order to combine harmoniously intellectual and bodily exercise for many constitutions and social situations, it requires daily efforts and two difficult things,—time and a strong and determined will; in short, what is still more difficult, and yet necessary, will be to subdue our mischievous propensities.—*Medical Press and Circular.*

MECHANICAL DENTISTRY—ITS DECLINE AS AN ART.—However we may differ as to the extent of the influence the cause we have named has had in lowering the standard of mechanical dentistry, both in the estimation of the public and the profession, all will agree that the introduction and use of vulcanite and other cheap bases has had a tendency to rapidly bring the art down to nearly the level of a trade.

It may be stated as an *axiom* in the practice of dentistry, as well as in the arts generally, that the use of an inferior material induces inferior workmanship. The artist does not expend his time and talents upon a subject wrought in a perishable material. In order to call forth his best efforts, he must have constantly before him the idea that his work will be lasting.

The use of the precious metals in mechanical dentistry gives us the assurance of great durability, and no expenditure of time and care is thought to be wasted. The thought that a set of artificial teeth cannot be of any permanent value, necessarily induces a hurried and careless habit of manipulation, and a consequent lowering of the art. Besides, there is something in the working of these metals—their solidity and power to resist chemical change—their value—that cultivates steadiness of hand and caution. Hence we often see work of this kind that seems to have been made with the dentist's whole heart and soul in it.

It was formerly thought that the training which the use of the precious metals in mechanical dentistry gives the student was admirably adapted to fit him for operative dentistry ; and it is true that it teaches him the precision and firmness of hand so essential to success in this department. On the other hand, the working of vulcanite and other cheap bases induces a hurried, loose, and infirm style of manipulation that is necessarily fatal to good results in operations upon the natural teeth.

Inferior workmanship implies inferior workmen. Hence we find the mechanical department crowded with dentists who have come into the profession without either the cost of time or money. They are too often men who are a reproach to the calling, since their only ambition appears to be to manufacture the greatest number of sets of artificial teeth with the least expenditure of time or thought. In the commercial world the public appear to discriminate in most occupations between the skilled and the unskilled. The brick-layer is paid more than the man who mixes his mortar. But in mechanical dentistry the tendency is to force the competent dentist down to a level with the inferior man, by placing him directly in competition with the latter. The result has been that the field is almost entirely abandoned to those who have no conception of what belongs to a true art calling. Those of the profession who have the training and the ability to develop the true artistic spirit of mechanical dentistry, have had their interest enlisted in other departments of dentistry, and, very naturally, they have ceased to talk upon this subject, as was once the custom.—*Dr. H. A. Smith, in Dental Register.*

THE CELLULOID BASE.—In the April number of the *Journal*, of the current year, we called the attention of our readers to this new base, and published, as an item of interest, the circular issued by the patentees, adding a word of caution against a too hasty adoption of what was then an untried experiment. Sufficient time has now elapsed to prove, we think, the utter worthlessness of this material as a base for artificial teeth, and agreeable to a promise made when we took up the editorial quill, we publish the following list of experimental cases with this base, with the results, as our own experience, and upon which, in part, we base our opinion of its merits:

Case No. 1. Mrs. P., full upper set gum teeth; returned in three weeks, so badly shrunk that the heels of the plate would not pass over the plaster model by one-eighth of an inch. The bicuspid blocks on both sides, drawn inwards, so that the upper edge of the gum was entirely out of the socket formed by the rim of the plate above the blocks. Color of plate, pink. Put up in boiling oil.

No. 2. Mrs. H., full upper plate plane teeth; returned in two weeks, shrunk so that the plate would not touch centre of the palate by one-fourth of an inch. Softened the plate and readapted it to the plaster model. Returned in one week, worse than ever. Color of plate, dark brown; boiled in oil. Plate inserted immediately after extracting the natural teeth.

No. 3. Mrs. H., full upper temporary set; returned in two weeks, so much out of shape that it could not possibly be worn. Color of plate, pink; boiled in oil.

No. 4. Mrs. R., full upper and lower set; returned in four weeks, shrunk so that it was impossible to wear them. The heels of the under plate one-fourth of an inch nearer each other than when first made.

No. 5. Mrs. E., full set of upper and lower gum teeth; returned in three months, all drawn out of shape; the under teeth drawn inwards, throwing the edges of the gum out of the rim, and the plates so curled up that the posterior molars would not articulate by at least one-fourth of an inch. The worst case of shrinkage and twisting in the lot.

No. 6. Mrs. R., full set upper and lower. Put up in June; is still worn, but a very poor fit. Color, light pink; boiled in oil.

No. 7. Miss L., full upper temporary. Put up in June; still worn; plate without any coloring material. Translucent.

No. 8. Miss I., full set upper; returned in three weeks. Made a new plate of the improved material; returned in six weeks, entirely out of shape.

No. 9. Miss K, upper set; put up in May; returned in six weeks. Made a new plate; second plate returned in eight weeks, worthless.

No. 10. Mrs. E., full upper and lower gum teeth; made in June;

returned in three months; blocks out of place and the plate all out of shape.

No. 11. Miss C., partial plate; returned in three weeks, worthless.

No. 12. Miss I., partial; returned in four weeks, worthless.

No. 13. Mr. H., full set; made in June; returned in four weeks; second plate of the improved material returned in six weeks, worthless.

No. 14. Mrs. B., full set temporary; returned in four weeks, worthless.

No. 15. Mrs. B., full lower set temporary; made in May. Still worn, but badly out of shape.

Ten other cases, returned as worthless.

We think comment on the above record unnecessary; it speaks for itself. Of all the cheap materials which have been palmed off upon the profession, as bases for artificial teeth, this is undoubtedly the poorest.

We have tried the different qualities of this material, and find but little difference in the result. The plates having the least camphor combined with them being undoubtedly the best; but they all contain too much of this element. Unless the manufacturers can overcome the shrinkage and warping of this material, it can be of but little use.

In the last number of the DENTAL COSMOS may be seen a full page advertisement, recommending very highly the celluloid base, and stating emphatically that all objections urged against it have been overcome. We have received plates, since this advertisement appeared, that do not differ materially from those manufactured three or four months since.—*Dr. Eames, in Mo. Dental Journal.*

THE CELLULOID BASE.—The President then invited the members present to discuss the paper read by Mr. Oakley Coles at a recent meeting, on the celluloid base. The discussion had been unavoidably postponed until the present meeting, but he hoped it would not be the less close and searching on account of the delay; the subject being one of great interest in the daily life of the practicing dentist.

Mr. Fox remarked that he was able to say so little upon the subject of celluloid base that he only rose in the hope that his few words might induce others to say more. He must first express his obligation to Mr. Oakley Coles, to whose courtesy he was indebted for his first instructions in using this new material. The good results he had seen turned out in Mr. Coles's work-room caused him to form a more favorable opinion of the new base than he had previously conceived from the report of others; still, he was inclined to wait for more increased experience before forming a definite opinion. He had used it experimentally in two cases of regulation, and after two months' wear had observed no change in the plates. It would be useful in such cases, inasmuch as a first plate could be readily altered to any changed positions of the teeth by merely re-pressing it in a fresh cast. He had not yet tried it as a base for artificial teeth, but as far as working it was concerned, he could say he had seen several most satisfactory cases turned out in Mr. Coles's work-room. In a case where it was desired to fill up a very high palate he had found its extreme lightness most serviceable. In such cases he had been able to use up several pieces left from other cases, merely scratching the edge well with the saw. When pressed, no point of union could be seen, and, as far as *appearances* went, the whole formed one perfect mass. He would ask Mr. Coles whether his continued experience with this material justified the confidence he had at first expressed in it,—whether he still continued to prefer the use of water to oil? It certainly was more cleanly to use; but several had expressed a very decided opinion that it did not produce such good results as oil did, and attributed many of the failures which had occurred to the non-use of oil. He had seen Mr. Coles use milk as a sort of compromise between water and oil, and would like to hear if Mr. Coles had tried it further, and with what results.

Mr. Oakley Coles had found, by experience, a confirmation of all he had stated two months ago. In this material we had something very admirably suited for dental purposes. In the whole of the cases he had only had one that had failed. That was a complete failure, as a piece broke away, and two teeth came out of their sockets; but that was due entirely to an imperfect combination of the gun-cotton with the camphor. That was really the reason. They did not take sufficient care in America to combine the two together; and so when it was worked up there was a white patch, and at that point failure took place. He had never had any difficulty arising from the warmth of the mouth. It was always sufficient if the celluloid was in contact with it to keep it from warping, and if there was a continuous line following the alveolar ridge there was very little danger of its warping; but if it was placed on the table, or taken out of the mouth, it would warp. If, however, when the teeth were taken out at night, they were placed (as was the rule) in water, they would keep all night, and there would be no trouble whatever in fitting them in in the morning. He still continued to use water in the preparation of the material: milk produced a tougher result, but he had discontinued it, as it was not so clean as water. There was no doubt that the material was very imperfect,—what was wanted was a much better material with the same characteristics. They all knew the difficulties that occurred in the early days of vulcanite, and that it was not until there was some degree of combination that something like good results were produced; and if some of our English depots or manufacturers would take up the celluloid base, they would get a material very much better than vulcanite in every respect. Besides, its lightness of color gave a freshness and vitality to the teeth. With black vulcanite they got a peculiarly dark and dense appearence to the tooth, which was quite unsatisfactory; but with this material a bony, transparent, and vital appearance was obtained which was highly satisfactory, not only to the patient, but also to the dentist. He could only trust that it would have a fair trial. They did not in this country give everything sufficient trial. There was great reluctance to take up a new thing, and in this matter everybody had been waiting for everybody else. There were various commercial interests that had tended to check its introduction into this country. It was American; it was patented all over the world, which was at once a check; and there were other interests which it was not necessary he should enumerate; but if a large number of persons would take it up and give it a careful investigation, they would soon have another valuable material added to their stores.—*Trans. Odontological Society of Great Britain.*

THE CELLULOID BASE.—We have been much surprised that so little attention has been drawn to the "Celluloid Base" in the *Journal*, and think it must arise either from the fact that the profession generally have not had confidence to adopt it or to fairly test its merits, or having been disappointed because their first attempts have proved unsuccessful and abortive (through want of practice or care), have totally condemned it; but since the first introduction of the celluloid into this country we have been daily experimenting with it in our laboratory, and we for some time met with several annoying failures, chiefly owing to our using water instead of oil; but since we have adopted oil for boiling the celluloid in we have worked it with great success, and our opinion is, that if proper care is exercised in the setting up and boiling out and in the judicious selection of a suitable size of plate, very good results may be confidently relied on, and that it will be found invaluable where a denture has to be made hastily, as also for repairing vulcanite pieces from which teeth have broken away, or which require additional ones. The *modus operandi* of repairing vulcanite is simply to proceed in the usual way, viz., set the teeth up in wax, insert them in plaster, be particularly careful to see that all dirt is boiled away, cut a piece of the celluloid plates slightly larger than the size and shape required, and then boil the whole in oil for about ten minutes; the result will exceed all anticipation, and the repair will be perfect in every respect, and nearly two hours of precious time will be saved.

Some dentists object to celluloid on the ground that it has an offensive camphor taste, and that it seems liable to warp, but one of our assistants some months ago made himself a partial celluloid piece for the upper jaw, and has worn it since, and his testimony is that after a few hours all taste of camphor passed off, and that the piece has not warped in the slightest degree; and here we may also mention that the plates now made are not nearly so much impregnated with camphor as the original ones, and hence this objection becomes almost a fancy grievance.

In conclusion, we think that though the celluloid in its present form will not entirely supersede vulcanite in all cases, yet its lightness, its peculiar toughness, its beauty of color and finish, and also the speed with which it can be manipulated, are all points much in its favor, which with time and experience will prove it to be an agent of great value to the profession and a valuable adjunct to rubber.—*J. S. Crapper, in Brit. Jour. of Dental Science.*

Celluloid Base.—This material, introduced to the profession in the last two years, as now improved and manipulated, is a very valuable material for cheap dentures. It is easily worked, is as permanent in the mouth as rubber, and far less objectionable in many respects. It is being used by a great many in the profession, and is being introduced very rapidly. It affords an opportunity to every one to abandon the use of rubber, and have a better material, that will be more satisfactory to those who use it; and we suggest to every one in the profession to immediately take it up, and let go that other thing.—*Ed. in Dental Register, Feb.* 1872.

Ossified Pulps.—I have recently adopted the plan, where there is any exposure of nerve and no inflammation, to cap the nerve with a small slice of spunk, one side slightly moistened with creasote and applied directly over the point of exposure, and then filling either with os-artificiel or amalgam, as the case may require. Where I wish to fill with gold, I use os-artificiel first, and let it remain for a few weeks or months; then cut away sufficient to form the cavity to my liking, then fill without disturbing the capping and the portion of bone filling immediately over.

I have in this way filled a large number of badly decayed teeth, whether exposure of nerve existed or not, and with more *decided success* than by any other plan I ever practiced.

The spunk serves as a complete non-conductor and at the same time a protection to the nerve and sensitive dentine in the neighborhood, by its peculiar soft and delicate texture and non-destructibility, it being almost pure carbon which makes it, in my opinion, pre-eminently superior to any other substance yet brought into use for like purposes.

Now, one of two things always occurs sooner or later where there is nearly or quite an exposure of pulp and the tooth filled, that is, the pulp either ossifies or dies; sometimes even the former condition first takes place to a limited extent, and subsequent death from too much continual shocking by the conductivity of the filling. In cases where the spunk is used for capping, the capping stands between the trembling pulp on the one hand and the shocks of the plug on the other hand.

No possible harm can arise from its presence in the bottom of all large cavities, as it is a palladium of safety to the delicate pulp and exposed ends of fibrils occupying the dentinal tubuli. In consequence of this protection, ossification, which must take place sooner or later on the inner walls of the pulp cavity or in the pulp at this point, or both consecutively may be carried on in a more normal or unhurried manner than must otherwise necessarily be the case, and as a consequence, in a large number of cases, the nerve and tooth be saved alive, when under other circumstances it would die and give trouble.

As a general rule, in all cases of exposure, or nearly so, where ossification takes place, the process is commenced immediately under the point of exposure, from the fact that at this point there has been destroyed and removed a large extent of nerve fibrils that formerly dwelt in the tubuli, where there was a normal balance between the vital fibrils and mineral dentine resulting in a physiological or healthy balance.

Now, where so large an extent of both non-vital and vital tissue have been carried away by disease, a corresponding weakening or vital resistance has taken place, which from this very weakening at the decayed point, yields to the more dominant influence of mineralization by slow, gradual accumulations of lime salts in the pulp, first by stasis in the capillaries, then infiltrations of the liquor sanguinis through the capillary walls into pulp tissue among the nerve fibrils.

At first we notice a chalky appearance at that point, of greater or less extent, of a granular mass not yet hardened into secondary dentine but undergoing this process. This can be often seen by the naked eye on removal of such pulps.

Sometimes there is a general white chalky appearance throughout the entire pulp, as if it was injected and distended with some white substance, which on exposure to the air does not shrink away like ordinary pulps into a wrinkled and corrugated piece of raw hide, but remains full and plump like a dressed partridge ready for the cook pot.

Some one more incredulous than the balance of us poor mortals, asks "if this is really the case?" I will simply answer him by asking him to just make the experiment for himself and see for himself, as seeing is to know it as positive evidence.

I do not ask the profession to believe all I say in the matter, but let them investigate for themselves and give us their knowledge as data for us to go by; where there is multitude of counsel there is supposed to be safety.

Those chalky pulps make very interesting specimens for the microscope.

After this stuffed appearance of the pulp, there is very little evidence of any red blood circulating in the tissue, though there necessarily must be liquor sanguinis, circulating there until the process of hardening is complete, as this same pulp possesses more or less sensibility, which I know from personal knowledge in a great number of cases.

The nerve fibrils of the pulp, even after the process of hardening is complete, sometimes remain quite sensitive to the touch of an excavator, an example of which I witnessed recently in a very interesting case.—*Dr. Cutler, in Am. Jour. of Dental Science.*

ENLARGED GLANDS FROM ROOTS OF A CARIOUS TOOTH.—Mr. Sewill then related a case of chronic enlargement of the glandulæ concatenatæ, which closely resembled the scrofulous variety of that affection, but which was believed to be due alone to the irritation of a decayed tooth. The patient was a lady, about twenty-five years old. The glands slowly increased during upwards of a year, in spite of the persistent use, under Sir W. Fergusson, of the remedies usually employed in scrofula. She then applied to Mr Canton, the surgeon, who, after going into the case, gave it as his opinion that the enlargement was owing to the presence of a broken-down lower molar on the affected side. For the purpose of having this tooth removed, she applied to him (Mr. S ). He found a chain of indurated glands, extending down the right side of the neck from the angle of the jaw to the clavicle, several of them being as large as an average-sized walnut. The second lower molar, on the same side, was broken down to the gum. He removed this tooth, and found that the roots had been the seat of chronic inflammation and abscess. After this operation an improvement was noticed within a week by Mr. Canton and himself; and since that time —July last—the glands had slowly decreased, although the medical treatment previously carried out was abandoned. Mr. Sewill pointed out that, pathologically, the diseased roots would satisfactorily account for the glandular enlargement. He adduced reasons why this case was probably not scrofulous in its origin, and he dwelt upon the importance of removing such roots in similar cases, whether the patient were or were not of a scrofulous diathesis.—*Trans. Odontological Society of Great Britain.*

BAD TASTE IN THE MOUTH FROM UNSUSPECTED ABSCESS.—Patient, aged forty-two years, in good health, teeth yellowish, tolerably hard, but a little inclined to be brittle. Have had the mouth under treatment about three weeks. Found the lingual surfaces of the inferior incisors and canines coated with salivary calculus, gums absorbed and presenting, as is usual in such cases, a red, inflamed margin, where it comes in contact with the accumulated tartar. The left inferior second bicuspid and first molar wanting, and superior left first bicuspid, likewise. The right superior left canine had been filled on distal surface. The cavity was large, and upon touching the filling with an excavator, the gold fell out, revealing the pulp cavity open. The patient stated that she had noticed a disagreeable taste, for two years, in the vicinity of the tooth, and I had no doubt but that it proceeded from the canine. The inferior left second molar had a large cavity, involving the mesial surface, and extending through to the grinding surface; and placing an excavator upon the margin of the gold, it fell into a cavity between the filling and the lateral wall of the cavity. The surface of the filling appeared more like the surface of a grater, than like a properly formed gold filling. With my excavator, I turned out the filling, and found the dentine softened and decaying over a great part of the walls of the cavity. Five or six other cavities were found in a similar condition. The tartar was carefully removed from the teeth, and the gums slightly touched with tincture of iodine, care being taken not to introduce a large quantity at a time, as it spreads rapidly, and covers parts where it is not needed. The canine was treated with creasote for some ten days; the root having been carefully cleaned out, the pulp cavity and crown cavity were filled with gold. A few days after filling the bicuspid, the lady called again, and still insisted that she tasted something escaping from the tooth which had been filled. A closer examination revealed the cavity in the lateral incisor distal surface, which had hitherto been completely masked by the close proximity of the canine. Upon separating the lateral incisors and canine, and passing a broach into the cavity, it was found that the pulp canal was open, and a large amount of pus flowed freely from it. I had therefore observed that the alveolar process, upon that side, was considerably thicker than the other, and that there seemed to be a little sponginess of the gums and mucous membrane, for a considerable distance around. The cavity of the abscess must have been large, as nearly a teaspoonful of pus escaped at one time. There was no soreness, no external fistula, and the tooth had given no pain, at any time, as I could learn. Creasote and tincture of iodine were forced into the cavity, as far as possible, and after a few applications, the discharge decreased and finally stopped. The whole was then filled with gold, and the "bad taste in the mouth" had disappeared. This abscess had existed for several years, and as a consequence of the continued irritation of the parts, there had been produced hypertrophy of the periosteum and mucous membrane, for a space extending at least an inch long and half or three-quarters of an inch broad upon both sides of the process, and, perhaps, a thickening of the process itself. Painting the parts two or three times a week with a strong tincture of iodine, will probably reduce the thickness of the parts, to some extent; but the thick, clumsy appearance of the alveolar process will probably not entirely disappear.—*Dr. Judd, in Mo. Dental Journal.*

Disease of the Maxillary Antrum.—This man was taken with a severe pain under the right eye. Soon after a discharge came on from the right nostril, very offensive. This continued until he came under my charge a month ago. A careful examination convinced me that this was a collection of fluid in the antrum. The anterior wall was thin, and glided with a parchment-like crepitation on pressure. I perforated above the first bicuspid; no matter escaped; then I introduced the small nozzle of a syringe, and threw in warm water, which flowed out freely at the nose, bringing away a large quantity of most offensive muco-purulent matter, slightly tinged with blood. I am now injecting the cavity daily with a solution of water and carbolic acid, of the strength of five grains to the ounce of water. This discharge has ceased, and the improvement is rapid. I have told you the antrum may be the seat of fluid or solid collections; that the solid growth may be simple or malignant. If it is fluid, and the opening with the nose closed, the walls of the antrum will bulge out in one or more directions, and the cavity be enlarged; if upward, it encroaches on the orbit; if inward, it closes the nostril; if downward, it depresses the roof of the mouth. When there is no bulging or deformity, the matter flows through the opening into the nose. The discharge is greater and more offensive in the morning. The fluid above the opening flows out during the recumbent posture, but a large quantity remains below this opening, and finally becomes putrid. His general health is good, and the local treatment will be continued, with an occasional tent in the perforation in the mouth, to keep it open for injection.—*Prof. Armsby's Clinic, Albany Hospital, Medical and Surgical Reporter.*

Recurrent Round celled Sarcoma of the Lower Jaw.—Dr. J. M. Barton presented a specimen of *recurrent round-celled sarcoma of the lower jaw,* removed from Frank R., aged twenty-seven.

The tumor began growing in May of this year, and when first removed, the last of June, was as large as a walnut, and was situated over the lower jaw, midway between the angle and symphysis. It returned immediately, and *two* months after the first operation was as large as at first, and occupied the same situation, the line of incision from the previous operation crossing the centre of the tumor. It was removed by Prof. Gross at that time, and found to be a round-celled sarcoma. The wound healed kindly, and the man returned home.

On November 8th, 1871, he presented himself at the clinic of the Jefferson Medical College (two and a half months after the last and but four and a half after the first operation) with a tumor occupying the parotid region, differing from the former growth in having the skin discolored over it. It had contracted strong adhesions to the skin and surrounding tissues, and was removed with difficulty, requiring close dissection.

In its general appearance it presents the same characters as the former growth, but has not as yet been submitted to microscopic examination.

The specimen was referred to the Committee on Morbid Growths, who reported it a rapidly-growing round-celled sarcoma.—*Proceedings Patholog. Soc. of Phil., in Phil. Medical Times.*

Syphilitic Disease of Inferior Maxilla; Removal.—Dr. Mears presented a portion of the *angle and body of the inferior maxilla,* which he had removed by internal incision from a woman, aged twenty-eight, at the surgical clinic of the Pennsylvania College of Dental Surgery. Nine months since, the patient had an attack of periostitis, involving the bone about the region of the last two molar teeth, which were carious. About a month after the attack, suppuration ensued, causing the discharge of very offensive pus into the mouth, and eventually abscesses pointed in the neck below the jaw. The teeth were extracted, and the bone was found to be diseased. Three months since, an attempt was made to remove the necrosed bone by an external incision. At that time it was not sufficiently detached to permit of its removal. During the first three months of the attack the jaws were firmly closed, and the side of the face very much swollen. The patient gives a syphilitic history.

In reply to a question of Dr. Keen, Dr. M. said he thought the partial anchylosis had resulted from inflammation extending from the masseter muscle to the structures surrounding the joint. He also stated that there was less difficulty in this respect since the operation.—*Proceedings Patholog. Soc. of Phil., in Phil. Medical Times.*

Removal of both Superior Maxillary Bones.—Prof. W. H. Mussey, of Cincinnati (*Cincinnati Lancet and Observer*), has successfully removed both superior maxillary bones from a colored man thirty-six years of age, who, in 1854, received a blow upon the left superior maxilla, which caused a fracture. The patient now presents but a slight disfiguration. The malar and nasal bones are all preserved, as also the soft palate, with a large portion of the covering of the hard palate.—*Medical Record.*

Lancing the Gums in Difficult Dentition.—Dr. Hatch, of Sacramento, Cal., recently reported four cases of fatal hemorrhage from lancing the gums in children who were already diseased, and who had taken calomel.—*The Medical Record.*

Neuralgia and the Diseases that resemble it.—What is the immediate cause of neuralgia? In his third chapter Dr. Anstie attempts to answer this question. At the beginning of that chapter he says: "I hope to show clearly, that as regards both the seat of what must be the essential part of the morbid process, and the general nature of the process itself, we possess very definite information indeed. I expect, in short, to convince most readers that the essential seat of every true neuralgia is *the posterior root of the spinal nerve in which the pain is felt*, and that the essential condition of the tissue of that nerve-root is *atrophy, which is usually non-inflammatory in origin*" (p. 110). The assertion that the posterior root of the spinal nerve is the essential seat of neuralgia, is, we think, if not strictly true, at all events very near the truth. So far, Dr. Anstie does but expound a doctrine which he holds in common with many other neuro-pathologists; but when he affirms "that the essential condition of the tissue" of the affected nerve-root "is atrophy," he propounds a theory peculiar to himself and one which, however capable of proof by facts yet to be discovered, still remains, in our opinion, wholly unproven by any evidence adduced in his elaborate chapter now under consideration. He claims for his doctrine "that the whole argument shall be taken together, for it is a case of cumulative proof; every link must be weighed and tested, before the remarkable strength of the chain can be felt." This is just what we have done: we have carefully examined every link, and we do not find one capable of sustaining the remarkable proposition in question. In other words, we do not find a single argument proving it to be even probably true, and as no chain can be stronger than its weakest link, our consideration of "the whole argument taken together" has not wrought in us that conviction which an examination of each separate part failed to produce. We confess that we are not surprised; for while fully recognizing Dr. Anstie's undoubted ability, and his extensive acquaintance with his subject, we believe that he has attempted an impossibility. Nothing that he has said shakes our conviction—a conviction held, we feel assured, by nearly every medical man who has thought on the subject—that the condition of the centripetal end of every sensory nerve affected with neuralgia is diametrically opposite to that described by Dr. Anstie. Within the space at our disposal we cannot discuss the several arguments he adduces, but we cannot help remarking that any seeming strength which they may have is mainly imparted to them by the ingenuity with which, while the simple, *prima facie* significance of established facts is ignored, a new and far-fetched meaning is given to them, so as to enable them to yield an apparent support to the author's original theory. And here we must express our astonishment in observing that he is actually so far enamored of that theory as to have become wholly unable to see *how* the simplest "peripheral influences" which "become factors in the production of neuralgia" produce that effect. Of such influences nerve-wounds are good examples, and surely no influences are more likely than these to exert an *irritating* and *exciting* effect on the nerve-centres in which the wounded nerves are rooted; but recognizing this truth would be recognizing a powerful argument adverse to Dr. Anstie's theory: he simply ignores it, and says, "the only common quality that can be predicated of all [these peripheral influences], is their tendency directly to *depress* the life of the sentient centre upon which their action impinges" (!). Truly, "love is blind" in more senses than one.

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As already intimated, Dr. Anstie has, in our opinion, attempted an impossibility, and therefore that he has not succeeded in his attempt, is no discredit either to his natural ability or to his professional acquirements. And indeed we feel no regret that his doctrine—that the posterior roots of the affected nerves in cases of neuralgia are in a state of atrophy—is insusceptible of proof; is probably, in fact, the very reverse of the truth; for certainly it is a very comfortless, and indeed, hopeless doctrine, and one which affords no kind of trustworthy and faith-inspiring indication of rational treatment.—*Bibliographical, in Med. Press and Circular.*

THYMOL.—Thymol is the "Camphor" of oil of thyme: it is a body solid at ordinary temperatures and soluble only to a slight extent in water, but readily soluble in alcohol, from which it is not precipitated by dilution with water; it is also soluble in ether and in glycerin, but its solution in glycerin is precipitated by the addition of water.

Then as to its chemical relations, I have already mentioned that creasote is an essential oil, which must not be confounded with phénol (carbolic acid), which is not itself an essential oil; but it is worthy of note that thymol is a member of the same homologous series as phénol—a fact which would lead us to the inference that its properties would probably be in some degree similar, though it is separated from phénol by an interval which would render it almost certain to present also considerable differences.

We have also seen that it is a body of similar chemical character with camphor, which has been long employed for dental purposes.

To sum up the conclusions to which we are led by theoretical considerations, we find that thymol is a part of an essential oil, a class of bodies which have perhaps fallen into undue neglect as remedial agents; that it is somewhat related to both creasote and carbolic acid, though removed from them sufficiently to present distinct differences in its action, and that we may expect it to possess both antiseptic and disinfectant properties.

I have not had it in use for a sufficient length of time to speak with certainty as to its value as compared with carbolic acid; as a rule, patients rather like its taste, and it is a capital sedative when applied to an exposed aching pulp; I am inclined to think that in this respect it is at least equal if not superior to carbolic acid.

This sedative or anæsthetic power is shared by several of the essential oils. Dr. Alfred Wright states in the pages of the *Lancet* that oil of peppermint is largely used by the Chinese as a topical application in facial neuralgia, and that he has found it of marked value in allaying the pain and tenderness of gout.

I have of late used nothing but thymol as a dressing in the fangs of teeth of which the nerve has died or has been destroyed; on removing the wool or floss-silk on which it has been applied, even after two months, the odor of thymol has been as strong as when it was put in, though the wool was blackened by discharges; and I am inclined to think that its effect is more lasting than that of carbolic acid.

But it takes a very long time to ascertain with certainty the practical value of a remedy; and it cannot be conclusively ascertained until it has been used by a large number of practitioners. My object in now writing on this subject is to show that, as far as theoretical considerations can tell us, it may probably turn out valuable, and at all events deserves a trial at every one's hands.—*Dr. Tomes, in Brit. Jour. of Dental Science.*

HÆMOSTATIC PROPERTIES OF ALNUS INCANA.—Thomas R. Dupuis, M.D., Professor of Botany in Royal College of Physicians and Surgeons, Kingston (*Canada Lancet*), recommends the *Alnus Incana* (Tag alder), so common in the States and Canadas, as an excellent hæmostatic. He has prescribed the bark both externally and internally, and has never observed any ill effects follow its use, except occasionally nausea and vomiting when taken too freely. Four cases are related—three of wounds and one of serious epistaxis—which were successfully treated with this remedy. He has also prescribed it in hæmoptysis and in menorrhagia with benefit; it is also well adapted to any internal or external passive hemorrhages in which astringents are generally esteemed beneficial.

In closing his article, Dr. Dupuis solicits for the decoction of the bark of Tag alder a trial from all those who may be interested in the development of the medical remedies of our own country.—*Medical Press.*

HYDRATE OF CHLORAL AS AN ESCHAROTIC.—Some months ago, when preparing a solution of the chloral, I held the stopper of the bottle containing it between my lips for a few moments. A small quantity of the crystals was sticking to it, and, on replacing the stopper, I found a red spot on my lower lip; this spot became quite sore, and continued so for several days. This fact led me to experiment with the chloral. The result is, I have found it to be one of the best, possibly *the best*, suppurative agent known. According to the time it is left on the skin, it becomes a perfect rubefacient, irritant, suppurative, or even escharotic.

I have given it fair tests personally, and strongly recommend its use; but *externally* only. When applied, the burning is precisely like that produced by a cataplasm of strong mustard; but, at the same time, a sedative action is perceived, which somewhat neutralizes the smarting, while it does not prevent an excessive irritation of the skin. It does not blister, but the part the choral has been applied to becomes exceedingly inflamed, and more or less swollen; and according to the length of time of application, shows a merely reddened skin, or a suppuration of several weeks' duration.

I give you my mode of application: Take a piece of fresh adhesive plaster, of the size wanted, and crush fine, on its surface, with an ivory spatula, enough of the crystals of the chloral to powder the piece of adhesive plaster quite evenly; use the edge of the spatula to take off the chloral where it is more than a mere dust in thickness, but distribute evenly, leaving one-third of an inch margin for adhesion: heat the back of the plaster for an instant only, and apply. Leave it on about half an hour as a rubefacient, six hours as an irritant. To produce suppuration, put the chloral on the plaster in larger quantities, and leave on from twenty-four to thirty-six hours; on its withdrawal, apply a stimulating salve, and afterwards heal with cerate. For an escharotic effect, apply the chloral, thickly spread, and, after twelve hours, repeat the application, if necessary.

It is surprisingly active as a suppurative, and for this reason it will not be prudent to apply it to any part of the surface of the abdominal cuticle, as, in one case under my inspection, having been left on too long, it occasioned a deep ulceration that was difficult to heal.

In this new mode of use, the chloral is truly invaluable; it is easily applied, cleanly, and perfectly reliable. It is a first-class derivative in facial neuralgia, earache, headache, and any affection of the eyes; a small plaster, of a half-inch diameter, that can be hidden by the hair, being sufficiently active, if prepared with enough chloral, to irritate in a very short time. I earnestly recommend the above facts to the notice of the medical faculty.—*Scientific American.*

A NEW STYPTIC.—Collodion, 100 parts; carbolic acid, 10 parts; tannin (Pelouse's), 5 parts; benzoic acid (from gum), 5 parts. Mix the ingredients in the order above written, and agitate until perfect solution is effected. This preparation has a brown color, and leaves on evaporation a strongly adherent pellicle. It instantly coagulates blood, forming a consistent clot, and a wound rapidly cicatrizes under its protection.—*Medical and Surgical Reporter.*

STYPTIC COTTON.—In the September number of the London *Pharmaceutical Journal* for 1870 there is an extract from the *Schwabischer Merkur*, written by Dr. Ehrle, of Isny, in which he gives the following formula for the preparation of the cotton:

"Take cotton of the best quality; boil in a weak solution of soda (four per cent.) for about an hour; wash with cold water; press out and dry. Then steep the cotton in a solution of the chloride of iron (diluted one-third); press and air-dry; after which pick to pieces."

This prepared cotton is of a yellowish-brown color, and requires to be kept protected from the air, as it absorbs moisture very rapidly, owing to the deliquescent character of the iron-salt which it contains. Having prepared some for experiment a few months ago, after using it for a time it occurred to me that if the sol. ferri subsulph. were used in its preparation instead of the sol. ferri chlor., a superior article would be made, inasmuch as the cotton would not then absorb moisture, and would not need the care to protect it which this did. I made some accordingly, and found it quite as efficient a styptic, and entirely free from the objection referred to.

By the sample which I herewith send you, it will be seen that it is of a light straw color and perfectly dry to the touch. It is easily carried and ever ready for use. It acts chemically and mechanically, —chemically through the iron-salt which it contains, and mechanically by means of its bulk and closely-pressed fibres. It has been in constant use at the St. Mary's Hospital for some months, and is looked upon by the surgeons there as a valuable addition to their armamentarium. The many instances in which its valuable aid may be called upon will suggest themselves to the surgeon and obstetrician, and need not, therefore, be specified here. While there is nothing new in presenting either of these iron-salts as a styptic, yet I think the profession indebted to Dr. Ehrle for the idea of putting them in a much more available and efficient form.—*James Cummiskey, in Phil. Medical Times.*

Antidote to Carbolic Acid.—Dr. Theodore Husemann opposes the use of fixed oils, glycerin, and similar demulcents in cases of poisoning by carbolic acid ; but recommends, based upon experiments with rabbits made by himself and Ummethun, the saccharate of lime, the alkaline earth combining with the carbolic acid to form a non-poisonous salt. Lime-water is less adapted to this purpose, owing to the sparing solubility of lime in water, and the large quantity of lime-water required for neutralizing the poison. Precipitated carbonate of lime does not combine with carbolic acid, but may be employed in case the saccharate of lime should not be procurable at once. The carbonate appears to act merely mechanically by absorbing the poison, and thus delaying its ill effects ; sufficient time is thereby afforded to prepare the saccharate.—*Zeitschr. f. Chem.* and *American Journal of Pharmacy.*

Electro-Therapeutics.—Dr. Oskar Berger, of Breslau (*Schmidt's Jahrbücher*, Bd. 151, Nr. 7, 1871 ; from *Berl. Klin. Wochensch.*, viii. 2, 1871), has treated twenty-five patients suffering from tic-douloureux by electricity. In most of the cases the disease was of long standing, and other remedies had failed. A large damp disk was attached to the positive pole and applied to the painful part, while the negative pole was placed in any position, but generally on the hand. The constant current, strong enough to cause a moderate amount of pain, was used. Twenty-two of the twenty-five patients were cured by this treatment. A few relapses occurred, but yielded readily to a reapplication of the same treatment. He has found it also useful in other forms of neuralgia. In hemicrania he has found it useless, as he failed to effect a cure in any of the twenty cases in which it was tried, although the points to which the electrodes were applied were constantly changed.—*Phil. Medical Times.*

Brown Tint for Iron and Steel.—Dissolve in four parts of water two parts of crystallized chloride of iron, two parts of chloride of antimony, and one part of gallic acid, and apply the solution with a sponge or cloth to the article, and dry it in the air. Repeat this any number of times, according to the depth of color which it is desired to produce. Wash with water and dry, and finally rub the articles over with boiled linseed oil. The metal thus receives a brown tint and resists moisture. The chloride of antimony should be as little acid as possible.—*Scientific American.*

Cleaning Polished Brass.—First, remove all grease, which may be done with a solution of concentrated lye and fine pumice or rotten-stone. A weak solution of muriatic acid and clean scouring-dust will then brighten it, after which it may be oiled, with olive or cocoanut oil. Vinegar and common salt may be used instead of the acid. Weak vegetable acids are preferable on fine work, and vegetable oils better than animal fats.

Another method, which a correspondent of the *Scientific American* says will clean the dirtiest brass quicker and better than anything else, is as follows: Take eight parts water, and one part muriatic acid; mix them, and put in common water lime, until the mixture is thicker than water. Shake up well before using. Pour some on a rag, and put on the brass. Let it stay a minute or two and then rub.—*Boston Journal of Chemistry.*

Cement for joining Iron.—As a cement for joining pieces of cast-iron or stopping fractures, Winkler recommends the use of the following mixture: sixteen parts of clean wrought-iron filings, three of powdered sal ammoniac, and two of flowers of sulphur.

When intended for use, it is recommended to reduce the dry mixture (which can be kept for any length of time without change) to the condition of a stiff paste, with the aid of water slightly acidulated with sulphuric acid. When so reduced it must be applied immediately, as it hardens rapidly.—*Journal of Franklin Institute.*

Nickel-plating.—The advantages of electro-plating with nickel are: First, that the coating of nickel is quite hard,—nearly as hard as iron,—so that it keeps its polish much better than Britannia metal or any other similar tin alloy,—even better than brass or silver; secondly, that it adheres well, even when put on in thick layers, so that it may be easily polished, and then has a shade between that of polished steel and that of alloy of silver and copper; thirdly, that it requires no lacker or varnish, since it does not tarnish by exposure to the air, as brass does, and even silver, when exposed to the least trace of sulphurous vapors. It retains its lustre for a very long time, being proof against oxidation under ordinary circumstances; wherefore Richter counted nickel among the noble metals.—*Manufacturer and Builder.*

## HINTS AND QUERIES.

If a small quantity of the hydrate of chloral is confined for a few minutes in the cavity of a sensitive tooth, will it in any way injure the pulp?—D. M. C.

What are the anatomical and nutrient characters of the cementum?—F.

What is the cause of the recession of the gums in persons not advanced in life, where the teeth are kept scrupulously clean; and what is the best treatment to check it?—J. W. E.

Can rubber-work be repaired securely with Wood's fusible alloy, and how?—H. A. B.

How can the best light for operating be secured?—W.

Will not some of the experts in the use of heavy foil give a detailed account of their manipulations of it for the benefit of those who have not the opportunity of seeing it worked?—Ward.

Though it is not considered sound practice to fill a tooth with a chronic abscess without first curing the abscess, would it be admissible to do so in the case of an otherwise healthy patient who had no opportunity of preparatory treatment--as, for instance, one just going to sea?--Law.

I would esteem it a favor if some one would inform me of the best mode to prevent the dark line shown at the junction of sections of gum teeth, even where the closest possible joining of the sections has been secured. With the greatest care I find this line enough to mar what would otherwise be almost perfection. I have tried oxychloride of zinc behind the joints to prevent the rubber getting in, but with no great improvement.--W. C.

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Reply to "J."—In answer to the question, "Does hereditary syphilis always record itself upon the teeth?" I would reply that such impressions are made in the direct form only when the transmission has been in the tertiary stage,—that is, this must have been the stage of the disease in the parent at the time the child is begotten. The subject of the relation of syphilis with dental evolution is one full of interest to the dentist. There is certainly no more common cause of irregular and imperfect denture than this disease, but the range of its expression is wide, being more commonly expressed in what is termed the lymphatic form of scrofulosis than what might be recognized as syphilis proper.

Reply to "A. G. C."--After removing all possible of the calcareous deposits, proceed to dry out the pockets and spaces between the teeth and gums and gums and sockets as dry as may be with packs, ropes, and pellets of bibulous paper. Then with a rubber-bulb glass-tubed syringe, with a nice smooth nozzle like a pipette, take up a sufficient quantity of aromatic sulphuric acid (elixir vitriol), *full strength*, and carefully fill all the pockets around the necks and roots of the teeth.

Proceed deliberately, continuing to supply the fluid, by gentle pressure on the bulb, as fast as the pockets and tissues take it up, until the parts are satisfied and the gaps stand even full of the fluid. As soon as the soft parts hug the teeth and hard parts tightly, rinse freely with some pleasant mouth-wash, and dismiss patient with injunction of scrupulous cleanliness.

After this, paint the bodies and margins of the gums once in two or three days with a saturated solution of re-sublimed iodine in alcohol.

After eight days, should there appear any discharge of pus, sanies, or ichor, repeat the treatment of cleansing at the points of discharge, and again paint with iodine as before.—A.

Reply to "John."—The following I offer as an answer to "John's" inquiry in the February number of the Dental Cosmos respecting cavities on approximal surfaces of anterior teeth. The most satisfactory method I have found for treating such cavities is, first with a good sharp chisel to cut freely away from the palato-proximal surfaces of the teeth, making a wide V-shaped space opening towards the palate; then with a wooden wedge, driven in firmly from the labial surface, so as to protect the gold from the moisture from the gum, and also to increase the space between the anterior surfaces, so as to allow the free use of a separating file in finishing. Now excavate the cavities from within the mouth, the head of the patient being thrown back to make them accessible.

You have in this way the mouth of the cavity brought directly in view, with the ability to reach every portion of the walls with an instrument quite straight, or but slightly curved near the point. The advantages of this method are multifold: 1. You have not the annoyance of a sore tooth from previous wedging. 2. You preserve intact the anterior or labial surfaces of the teeth. 3. When finished, you have the face of the filling so that it can be kept clean and smooth, thereby obviating the liability to decay around the periphery by the retention of food; and last, but not least, the whole operation is completed at one sitting, and without one-half of the suffering to the patient.—S. N. E.

Reply to "K."—In reply to your querist, who asks, "When a tooth is in such condition that an abscess is threatened and cannot be prevented, is it better to establish a fistula by mechanical means, or to permit it as the result of suppuration?" I think I may offer a few suggestions.

I think we should not consider the prevention of an abscess as impossible until the formation of pus has actually commenced; but when this stage of the inflammatory process is reached, I have no doubt it is better in many cases to facilitate its evacuation by establishing an artificial fistula. By doing this, we may frequently not only save our patient from much suffering in the present, but secure for him a much more serviceable tooth for the future than if extended suppuration were allowed to take place.

It will be remembered that the pain of inflammation results from the tension or pressure arising from swelling and from exalted sensibility produced by determination of blood; that the inflammation of which we are speaking is situated between the unyielding walls of the alveoli, and therefore the tension is frequently very great.

Where inflammation occurs in more yielding tissues there is usually a diminution of pain on the commencement of suppuration, but in alveolar abscess the formation of pus is frequently attended with increased tension, and consequently greater pain.

Now, in performing this operation we not only give free exit to the pus and accumulated lymph, but the painful tension of the parts is at once removed, and local bleeding encouraged to a great extent, lessening inflammatory action.

The tissue which replaces that broken down by suppuration being of a lower degree of vitality, is also more liable to be again broken down by any future inflammation. While I am not prepared to say this method is better in *all* cases, I think it is undoubtedly so in many.—Charles E. Pike.

Reply to "A. E."—In reply to your correspondent "A. E.," I can state that having experimented to a limited extent with the so-called "Chicago Gold," I have found it to possess properties that may be of value in the operation of filling.

Satisfied that the results produced by the Chicago fire could be reproduced by the application of long-continued heat,—I tried the experiment. The first attempt was only partially successful. The failure was attributed to a lack of sufficient weight on the sample of gold, none at all being used on the first effort. The second attempt was made with a weight of four pounds of iron on the book containing the gold. It was placed in an ordinary range oven. This was the most convenient form of applying the heat, but I think better results could be obtained by a more regular and perhaps more intense heat, though of this I do not feel positive. At the expiration of three days the gold was examined. The book was much charred, the metal simulating "Chicago," but was not fully satisfactory. It was replaced and kept under two days longer. On removal, it presented all the peculiarities of the original.

To the unassisted eye the surface presents a beautiful crystalline appearance. It is remarkably soft, exceeding in this the most perfect non-cohesive foil. It, however, does not seem to have lost the latter quality in the least degree, packing with great facility.

Its microscopic character has not yet been thoroughly determined, but from what has been observed, its peculiar characteristics seem to be mainly produced by extremely minute folds of gold. It will be borne in mind that as the paper chars, it shrinks until the book is reduced one-third or more in size. This shrinking forces the gold on itself, breaking it up into innumerable folds, thus rendering it perfectly soft. To what extent the crystals of gold are changed from their original position, I cannot determine. It would seem that there must be a change, aside from the folding, as the surface presents some of the appearances of crystal gold.

It is not safe to give positive opinions on limited experience, but from what I have seen of this form of gold, it seems to me to possess peculiarly valuable properties.

The experiment is very simple, and all can try it for themselves. This will probably have to be done, as I am not aware that any such gold is now in the market.

Through the kindness of Charles Abbey & Sons, I have been enabled to examine, since writing the above, a book of "Crinkled Gold-leaf," prepared by Smale Brothers, London. It is precisely the same character of foil as the Chicago fire has given us. This book has been in the possession of Charles Abbey & Sons since June, 1863.—J. T.

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Taking Impressions for Partial Cases.—Take gutta-percha, such as is used for base plates,—that which has been used several times is much better than new,—and put it in water nearly boiling hot. When sufficiently soft, work it with the hands until the lumps are all out. Take the impression in the same manner as with wax. It is necessary, when the gutta-percha is introduced into the mouth, that it be warm enough to be *perfectly* plastic. Press it carefully into all the places an impression is required of, with the fingers. Let it stay in the mouth until it is found by trying with the finger-nail that the gutta-percha is just cold enough to spring back in its place if moved; then remove it carefully from the mouth and place in cold water, being careful not to lay it down so as to bend the gutta-percha before it is thoroughly cold and hard. To prevent the gutta-percha from sticking to the patient's teeth and lips, have the mouth rinsed with water before taking the impression. The operator's hands must also be wet. To have it cool quickly, throw under the lip, and where it will best come in contact, a few syringefuls of cold water.

The advantages claimed are, that if the mouth is so shaped as to bend the impression when it is being taken out, the gutta-percha will spring back to place where wax would not; and if plaster was used it would break.—Dwight M. Clapp.

Capping Pulps.—My method for the last three years has been to carefully remove caries, and place in the cavity a mat made of three thicknesses of tissue-paper—the size of the floor of cavity—saturated with carbolic acid, which I press down lightly with a pellet of tissue-paper. This done, I prepare some os-artificiel in a thin paste, and drop into the cavity till it is half full; this I press softly with a pellet of tissue-paper just enough to absorb the moisture. I continue to apply the pellets till the cement is perfectly hard, which will be the case in a few moments, after which I remove the excess and fill with gold. But little pain is felt, and it lasts but for a moment. When there is inflammation I treat with carbolic acid; first of full strength, afterwards diluted, until the pulp is free from inflammation.

When I succeed in preserving a tooth with exposed pulp alive, I feel that I have accomplished something.—M. L. Battle.

Hemorrhage following Extraction.—Señor B. called at our office to have the roots of a lower molar extracted; the tooth had been broken off by a barber. Subsequently a dentist, after working over an hour, had also failed in extracting the roots. After some little difficulty, I succeeded in their extraction, and giving the patient an astringent wash, sent him on his way rejoicing. I did not see him until four days after, when at about nine o'clock at night he made his appearance at the office almost covered with blood, which made the case appear quite serious; stated that at about noon of that day the blood commenced oozing from the alveolus, from which the roots had been extracted. He called on a physician, who put some powder in the socket; but the blood continuing to flow very freely, Señor B. found himself becoming very weak, and became much alarmed. After removing all the clotted blood, I syringed the socket with cold water and applied a cotton plug saturated with perchloride of iron, and, making a compress of cotton, directed him to close his teeth on the compress. After waiting some time, it appeared that the blood still continued to flow very freely, and the patient was becoming very weak from the loss of so large a quantity of blood. I removed the compress and plug, and again washing the socket, made another application of perchloride of iron, and in addition made a plug saturated with sandarac varnish, and over both plugs placed a pretty large piece of cotton saturated with the varnish, at the same time applying a compress. In less than half an hour the hemorrhage ceased and did not return again.

I would like to know why the hemorrhage should commence four days after the extraction of the roots, and then with such great violence as to cause considerable alarm for the safety of the patient.—Joseph Spyer, D.D.S., *Rio de Janeiro.*

Polishing Plates.—Being desirous of contributing "*my mite*," I send the following mode of polishing plates for artificial dentures, either of rubber or the celluloid base. (The latter I have used since it was first introduced.) After buring and scraping sufficiently, I sandpaper the plate as follows: placing in my lathe (in place of the screw mandrel) a round piece of wood about half an inch in diameter and four inches in length, I turn the projecting end so as to make it *run true*, and taper gradually, so that it will not be more than an eighth of an inch in diameter at the extreme end. I then slot this piece of wood from the point to where it enters the socket with a jeweler's saw, and in this slot I place a piece of No. ½ sandpaper, about two inches wide by three in length. As soon as the lathe is revolved, the paper rolls around the wood, and in this manner I can sandpaper a plate as well in *three minutes* as it can be done by hand in half an hour. I then remove this piece of wood and lay it aside for future use, as *one* will last for months, and put in my screw mandrel, on which I use a cork cone, of suitable size, and powdered pumice-stone, saturated with *common soft-soap*. The soap is the best thing I have ever used for this purpose, as I can run my lathe *much longer* without the cone getting dry. The soap, in connection with the pumice-stone, forms a convenient paste, which does not fly and spatter as when water is used, and the plate is very easily washed *clean* after using it. I can get a *better finish* and in *far less* time with it than with anything else I have ever been able to find. After polishing *smooth* and removing all traces of the sandpaper, I finish in the usual manner.—Merville D. Ralph.

The Celluloid Base.—In the December number of the *Missouri Dental Journal* there appears an article by Dr. Eames (see article referred to, page ) in reference to his experience with this base. Much of what he says was true of the plates first furnished, and, because of a somewhat similar experience, we were induced to make the experiments, which we reported in the October number of the Dental Cosmos. The base has been very much improved since, and the manufacturers claim that they have accomplished the same results as we arrived at by diminishing the quantity of camphor.

It is to be regretted that Dr. Eames has had so unfortunate an experience. We have been more successful, but we do not wonder at his failures if he treated all the cases as he did Nos. 1, 2, 3, and 6, in *boiling oil.* Those cases must have been spoiled before they were placed in the mouth.

The published directions do not authorize a heat of more than 300° (never above 310°), but boiling oil is about 600°.

A dentist of this city, a licensee of the Dental Vulcanite Co., told us the other day, in one of the dental meetings, that he had fifty cases in wear perfectly satisfactory, and another practicing in the vicinity, stated that he had over two hundred doing good work.—Preterre Brothers, New York.

Sensitive Dentine.—In the January number of the Dental Cosmos there are some suggestions upon this subject by Dr. Brockway which I wish to second. Since using the rubber dam, while excavating, I have invariably noticed that after the cavity was dry enough to blow out the chips, the sensitiveness was slight, if any. Perhaps every one has observed a case analogous to this when commencing to operate on a nerve canal, it being necessary to observe great caution to avoid giving severe pain, leading a novice to suppose the pulp was still alive. But as soon as the canal is *dry*, there is no more pain.—O. A. J., *New York.*

Inserting Pivot Teeth.—Having decided that the root is healthy, I proceed in the usual way to prepare the root and tooth, being careful to make a good joint. I then wash the prepared cavity of the root with a solution of nitrate of silver, just strong enough to color it a light brown, and dip the wood for the pivot in the same solution. Prepared in this manner, I find that the action of the secretions of the mouth are better resisted, and that, consequently, such operations are more lasting than those performed without this precaution. There is a lady in this county who has worn two pivot teeth, prepared in this manner, for twenty-five years without repivoting.—C. C. Porter.

## THE RUBBER QUESTION.

THE interest felt in every section of the country in this question is so great, that communications and reports in reference to it have been received sufficient to fill the journal. Selections have been made from them, which present the feelings and purposes of the profession generally. They evidence a spirit of resistance to oppressive fraud and imposition which would have broken the Cummings patent years ago, if it had been *availably organized* and directed against it.

Information, believed to be reliable, has just been received that the Supreme Court has been or will be adjourned for about a month.

This will give abundant time for the meetings called for this month to appoint their committees and join their forces with those already engaged in the work.

S. S. W.

TO THE DENTAL PROFESSION. CINCINNATI, O., February 10, 1872.—At the last annual meeting of the Ohio State Dental Society, the interests of the profession in relation to the Rubber question, and particularly the aspect of the "Cummings Patent," secured due attention and consideration, and it was finally resolved to put the whole matter in the hands of a committee of five, with authority to inaugurate a prompt and vigorous resistance to this imposition.

The committee created in pursuance with the above resolution is in possession of facts and information which is a matter of moment to all, and they are of the opinion that not only the dentists of Ohio, but of the whole country, have each a direct personal interest in the right decision of the question at issue; and believing that immediate and vigorous action is necessary to secure such a result, they have decided to issue this call for a MASS MEETING of the Dentists of the Mississippi Valley, to meet at the Ohio Dental College, on Thursday, March 7th, at 2 P.M., to learn all that is known to the committee, to consult further together, and increase our means and power for resistance.—F. H. REHWINKLE, *Chairman*, *Chillicothe*, *Ohio*. H. A. SMITH, *Secretary*.

MEMPHIS PROTECTIVE ASSOCIATION. MEMPHIS, TENN., Feb. 1, 1872.—The dentists of Memphis in their organized capacity have been holding a series of meetings for the purpose of successfully resisting the further extortions of the Boston Dental Vulcanite Company, of which Bacon & Co. are the purchasing speculators, and have set on foot the plan as follows, and do earnestly request all the States to make a similar effort.

Organize and send one or more delegates to Washington *armed* with the names of all the dentists of the State joining in one solemn protest in the name of humanity, justice, posterity, and the people whom we serve. Let the voice of the people be heard—"Vox populi est vox Dei"—that no further extension or improvement be recognized or allowed to the monopoly who have realized untold millions of dollars by their unjust exactions from all sources for more than twenty years. And, further, that the dentists in every judicial district in the State at once fortify themselves against the attempt that Bacon & Co. will make to fasten upon them the validity of the Cummings patent, by securing funds and engaging able counsel to go to work at once, and let the very first case be of sufficient strength as to forever invalidate the so-called Cummings patent.

By order of the Memphis Mutual Protective Association.—S. HINSON, *Cor. Sec.*

MASSACHUSETTS DENTAL SOCIETY—SPECIAL MEETING, February 2d, 1872.—Meeting called to order at 7¾ o'clock, the President, Dr Cooke, in the chair.

This was a *special meeting*, to hear a report from New York dentists in relation to the action being taken with reference to the Cummings patent, and to see if we will co-operate with them. Invitations were sent to dentists throughout New England; consequently there were quite a number present not members of the society, and it was *voted* to invite all present to partake in the discussion.

Dr. Moffatt read an article from the January number of the DENTAL COSMOS relating to this patent. He then stated the terms upon which the case was to be tried, which was in substance as follows: The attorney had agreed, that if he succeeded in getting the case, he shall receive $10,000, but if the case is lost, he receives nothing more than the costs of the court. He has also pledged his honor not to give it up until it is decided one way or the other. He has also another case, involving a much larger amount of money, and if he succeeds in getting the first, he feels confident of obtaining the latter.

Dr. Hitchcock read a letter from a New York dentist, which contained in addition to what had been said by Dr. Moffatt, that Mr. S. S. White came to New York from Philadelphia expressly to learn what was being done in this matter, and had furnished an eminent lawyer, which Mr. Foster had accepted as associate counsel.

Dr. Samuel Lawrence, of Lowell, said there was a gentleman present from that city (Dr. Gerry) who had looked over his receipts, and found some from Mr. Bevins for money paid for the privilege of using rubber, dated as early as 1861, and that gentleman could bring forward the patients for whom he made plates at that time.

Some of the absurdities of the license were read by Dr. Lawrence. He said he was in the office of the Vulcanite Company a short time since, and asked for a license for six months, and was informed that he could not obtain such a license, as they had received instructions not to issue licenses for a period less than one year. He then paid the amount for one year, calling two gentlemen present as witnesses that he paid the same under protest, and informed him that if the patent was decided void, it was the last time he should call upon him, but should expect to see him the next time at his office in Lowell.

Dr. Gerry said Josiah Bacon told him one year since, in reply to exceptions taken by Dr. G as to the justice of this patent, that he didn't care whether a patent was just or good for anything or not; that if he had money enough he could put *any* patent through; intimating that any court could be bought. Dr. Gerry had also had a talk with Gen. Butler, who told him he should think the dentists would free themselves from such an unjust extortion, and he believed it could be accomplished for the interest on the money paid by the profession for licenses.

Dr. Bishop, of Worcester, said he was afraid the case would be decided against the dentists, but sincerely hoped we might succeed. He believed the Goodyear was a valid claim, and we ought to pay up to May next; but he also believed that the Goodyear patent invalidates that of Cummings; said he had paid the amount of his license for 1872, but had not yet signed the license. He mentioned two dentists who held licenses from Goodyear, protecting them in using the rubber through all its issues and reissues; but one of these gentlemen had been prosecuted by the Vulcanite Company, and had spent six thousand dollars in legal counsel in defending his rights. Dr. B. doubts if it can be broken up in this case, but thinks a new case could be successfully carried through. He does not believe that to-day we are making cases according to the claims of the Vulcanite Company.

On motion of Dr. Moffatt, it was *voted* to authorize the treasurer of the society to give receipts for all notes received.

On motion of Dr. Chandler, it was *voted* to request Mr. Harkins, as agent for Mr. White, to distribute the blank notes among the dentists.

On motion of Dr. Codman, it was *voted* to have this matter up for consideration at the next regular meeting.

Dr. Severance, of New Hampshire, wished to know if dentists would be protected after May if they used the rubber, and was informed that if the patent was decided void, they would have a right to use it, but if decided otherwise, they would be obliged to obtain a license.

A question arising as to whether the papers signed required a stamp or not, Dr. Codman volunteered to stamp them all, if the laws of the United States required it.

Dr. Bishop read a letter from Baltimore, showing that there was an interest being manifested in other places in this matter. He hoped there would be some expression from this society showing that *we* were in earnest.

On motion of Dr. Moffatt, it was *voted* to choose a committee of three, to draft a series of resolutions on this subject, to be acted upon at the next meeting. Drs. Moffatt, Chandler, and Waters were chosen.

On motion, it was *voted* to invite Dr. Bishop to read the replication of Dr. Gunning, which was accordingly done, and listened to with interest.

Dr. E. T. Wilson said he hoped the dentists throughout New England, and especially those of Boston, would unite at once and put the thing through. He considered the whole thing a swindle, and the profession ought to arise and free themselves from it. *He was personally sure* that Cummings was not the man to invent, perfect, and carry through such an invention. He pledged himself to pay over to the treasurer of the society such amount of money as they should need from him to carry the case forward.

On motion of Dr. Chandler, it was *voted* to have the society send out one of the blank notes with the notification of the next meeting.

Several letters were read by the secretary from dentists who were unable to be present, showing that though they were not with us in person, they were in heart, and were received with much enthusiasm.

Dr. Sellers, of Haverhill, informed the society that he paid annually one hundred and twenty-five dollars, and Bacon always said "not a cent off."

Over *seven hundred dollars* were subscribed in a very few moments, and promises of more.

On motion, adjourned.—C. WILSON, D.M.D., *Rec. Sec.*

DENTAL PATENTS.—In reviewing the Cummings patent in the January number of the DENTAL COSMOS, it was intended to show by business receipts how openly and directly the Goodyear patent for years covered, indisputably, claims to all adaptation in our profession, selling and conveying rights, which gave the very best evidence, from the very best source, of the invalidity of all subsequent devices to claims, such as are made by the patent of Cummings.

These patents in separate possession must ever have been in conflict; so much so that the Cummings patent was allowed to sleep a long sleep of ten years of its worthless life, and was only revived by being doctored in its faulty caveat by this very company, who now grasp it to extend a monopoly of extortion. In the service of humanity, it (the rubber) should have been free from the first. Medicine and surgery ought never to be restricted in their resources; and if public opinion does not freely guarantee this, I am quite sure if we seek legislation we can obtain such desirable result without difficulty. Now, soon we may make a comb or knife-handle of rubber, but if we desire to bind up a broken jaw by a splint of rubber vulcanite, we are to be restricted. In short, you may make anything else of rubber, except when applied to dentistry.

The breaking down of this invalid patent is sure to be accomplished, although not without a severe struggle. The millions seen in prospective by this company will stimulate them to every effort which money and talent can effect to enforce their claims, not to speak of the power and influence of an unprincipled monopoly, who have already boasted, by their chosen treasurer, of not caring about the validity of *the patent*, so long as they had money enough to put it through the courts, and thus establish it. (A gentleman in our profession is ready to come forward and make affidavit that this boast was made to him thus personally.) Could a New York ring in its palmiest day be more insolent?

I suspect a case to break up this claim will yet have to be instituted, as those already started have been managed by less attention on the part of the dentists than by the monopoly, and thus those which are now in progress—and evidence all in—are quite likely to go in favor of the patent, while one-half is not yet told of all that would invalidate this unrighteous claim. The universal determination on the part of all the dentists of the country to *resist* this patent because of its *in*validity is as much to their credit as has been the *respect* paid to the Goodyear patent on account of its known *validity*. And doubtless such resistance will, as it should, succeed. Of the many things to be said applicable to this subject, not many can be hinted at in an article short enough to find publication now; neither will an argument in the journals effect much practically; yet one or two points seem pertinent to introduce in this connection,—*i.e.* the conflict of patents which agitated the dental profession from the year 1850 to 1860. We had had a base for artificial teeth then over fifty years, when we suddenly found ourselves in conflict with a Hunter's patent, an Allen's patent, and a Loomis's patent,—all for a silicate gum for whole or parts of the base for teeth,—a Truman's patent for india-rubber, and a Slayton's patent for a gutta-percha base, etc. All of these received such opposition as they deserved, and were laid quietly to sleep, being all abandoned by their respective claimants to the free use of the profession, which foreshadowing then served to keep the Cummings device quiet till all interest in it was supposed to be given up.

To know how an undeserving claim may be successful in the American Patent Office, see Kendall's article on Dental Patents in the *Baltimore Journal of Dental Science*, 1852. See Townsend's address (1853) on Dental Patents before the American Society, wherein quotations from Bouvier's Law Dictionary, concerning American patents, bear heavily on all such as this, which was somewhat thought of about that time, or soon after; also, in the same address, recommending the same restriction in a code of ethics for the Dental Society as had been passed by the Medical Society, discarding all patentees from membership, and stigmatizing them as unworthy of associated membership in those respective bodies. Professional action in these societies was very influential at the time, and although not directed against the validity of *bona fide* patents, was the means of checking a mania for patents then raging.—H. F. Bishop.

The Rubber Matter—To the Profession.—The writer, in common with others, is in constant receipt of inquiries as to what is to be done in reference to the continued demands of the Rubber Co. It is evident from these inquiries that the true state of the case is far from being understood by many,—and it is with a view of directing attention to facts which it is important should now be well understood, that these lines are written. Many persons seem to have imbibed the idea that the Rubber Co. have no legal rights after the 6th of May next, and that all that is to be done is to treat their demands with contempt, and very possibly in addition, show the agent, when he calls, out at the back door as unceremoniously as possible. The writer would earnestly assure such, that nothing could be further from the truth; on the contrary, *as it now stands*, the Cummings patent is just as good in law as the Goodyear ever was; so long as it remains without an adverse decision by the courts, it is a perfectly valid patent, and any attempt to use rubber for dental plates without a license, will be sure to be met by an injunction in short order. It will not do to underrate the strength of the enemy. No one person need imagine that he alone, by any short-cut method, can escape the sure processes of the law, for he will only thus be doomed to disappointment.

At the same time, it is confidently believed that this patent is unsound, as we know it is unjust, and can be shown to be so. But mere talk and bluster will be of no avail, and the sooner the profession understand the precise nature of the case, the more probability that effective steps will be taken to accomplish our object. In respect to the facts, we would call attention to the article on pp. 55 and 56 of the Dental Cosmos for January. The author of those remarks, though unknown to the present writer, evidently knows whereof he affirms, and we would urge an earnest study of the article by every dentist, as its conclusions are the same which the writer has arrived at, and are the result of a full investigation of the subject.

As to what is to be done for the present year, we would say, let every dentist with the above facts before him, get along as best he may. If he can avoid the use of rubber, well and good; but if he cannot, unless he is willing to be enjoined, let him take out a license as before. The idea that by so doing we shall commit ourselves to a recognition of the Cummings patent to any greater extent than we have in the past, is erroneous, as licenses heretofore granted have bound us to recognize that patent so far as any *ex parte* bargain can bind us; and the company is not dependent upon its receipts for this year for the means to establish its claim. In the mean time, let every one understand the watchword—Organize! Let every society at a special or its regular meeting appoint a committee to act auxiliary to such an organization as may be effected at headquarters. Let every *individual* understand that his help will be needed, and be prepared to fall into line when the opportunity is offered. It is neither possible nor right that those residing in the large cities, who may give their time to this work, should bear all the burden. If it is equally distributed among those who use rubber, the expense of crushing out this monopoly will not fall heavily upon any one; if it is not crushed out, Bacon will continue to draw a tax of a quarter of a million annually for ten years from our burdened profession,—a tax which, unlike other taxes, comes out of the pockets of the producer instead of the consumer, in addition to his other expenses. The movement for opposition is rapidly assuming shape, and in due time such plans will be adopted as will enable every dentist to co-operate, with the assurance that if the means are furnished, no effort will be spared to shake off this incubus.—C. Stoddard Smith, *Secretary Illinois State Dental Society.*

What are we going to do about it?—"What are you going to do about it?" H. F. B., in the January number of the Dental Cosmos, asks. What are *we* going to do about it? is the burden of the interrogative that haunts the tranquillity of every dentist who feels that he has an individuality. About what? you may ask, and I answer: The sharp practice and galling impositions of Josiah Bacon upon the fraternity. Will we permit him to impose upon us, as valid, a thing so lame as the Cummings patent? If we do, then we have forgotten charity and allied ourselves to piracy. Even in this comparatively new State of Illinois I could refer to scores of dentists who for twelve years have mounted artificial teeth on the vulcanite base. I like the hints of G. W. Tripp on the last four months of the Goodyear patents. Hundreds of dentists in the West have refused to enter into any agreement with the Boston Dental Vulcanite Company for the current year, and I would that not one in the United States had so far forgotten himself as to enter into such an agreement. Have we no rights that the tribunals of our government are bound to respect? I answer, we have if we legally demand these rights.

Have we the pecuniary means to sustain ourselves in a conflict? I answer, we have, and that the great West alone is ready and willing to contribute thousands of dollars to such a project, and a fraternity that has for years paid into the treasury of the Boston Dental Vulcanite Company yearly from two to three millions of money can sustain themselves in the courts when they are in the right. Then, what will we do about it? Let the good work have its origin in some prominent Eastern dental association, let some plan be perfected by which the members of the profession can have the privilege of contributing, *and we will contribute.* Then let good, talented and honorable counsel be employed; let us move for our rights and stand up honorably before the courts and demand justice in a war on the Cummings patent. Let us hear from you.—W. F. C.

"MONSIEUR TONSON COME AGAIN"—RUBBER SUBJECT.—* * * We are not now writing to give our views upon the rubber question, or the Cummings patent, but as it is a matter of most vital importance to many in our profession, we simply aim to give, for the gratification of those interested, the little information we possess in reference to the present status of the question.

And in the first place, from intelligence gathered from various sources, it seems that the Dental Vulcanite Company have left no means unemployed to secure the validity of the Cummings patent, and the result is, they have considerably the start of the dental profession in the race. They have obtained some of the strongest counsel in the country. Colonel Fisher, the former advocate for the profession, than whom there is no stronger and more influential patent lawyer in the country, has been laid upon the shelf; others have been disposed of in the same way. This will be a matter of exceeding regret to the profession. Some time ago prosecution was instituted under the Cummings patent against Dr. B. E. Gardiner, of Providence, R.I., the result of which was a decision of the U. S. District Court affirming the validity of the Cummings patent. An appeal was taken in this case to the Supreme Court of the U.S., for the purpose of reversing the decision. It was set for a hearing in January, 1872. We have not learned that the case has yet been argued.

The dentists of New York and Brooklyn, and perhaps other places, have united in sustaining this appeal. Able counsel have been employed in New York and Philadelphia to conduct and argue the case before the Supreme Court. What the result of that appeal will be, time only will determine. If a decision sustaining the patent is obtained in this Court, that will end the contest in this direction.

There is a way, however, in which this can be very decisively met, viz.: STOP THE USE OF RUBBER, as every man in the profession ought to have done long ago, and as we think every one would if they had taken a correct view of the degraded position to which they were reduced, by being placed under the imperious and demoralizing exactions of the Dental Vulcanite Company. That company has held a rod—yes, a "cat-o'-nine-tails"—over the heads of the yielding, timid, frightened members of the dental profession, until they have opened their purses and said take it.

Now, it is high time this procedure should stop, and the profession can stop it if they will, and the indications now are that they WILL. Meetings are being called at various places throughout the country to consider what is best to be done. A meeting of the profession of New York State is to be held in New York on the 13th inst., and of Pennsylvania in Philadelphia on the 27th, and of the Western States in Cincinnati on the 7th of March prox., as will be seen by circular in advertising sheet of this month. It is desirable that these meetings should be largely attended, and let the action be prompt and decisive, and such as cannot be mistaken.

The question comes every day, Shall I take out license for this year, and under the Cummings patent? Let the answer ring everywhere, NO.—*Editorial in Dental Register.*

THE

# DENTAL COSMOS.

VOL. XIV. PHILADELPHIA, APRIL, 1872. No. 4.

## ORIGINAL COMMUNICATIONS.

### DENTAL PATHOLOGY AND THERAPEUTICS.

BY J. FOSTER FLAGG, D.D.S.,

FORMERLY PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS IN PHILADELPHIA DENTAL COLLEGE.

[Entered according to act of Congress, in the year 1872, by J. Foster Flagg, D.D.S., in the office of the Librarian of Congress at Washington.]

(Continued from page 121.)

HAVING established an accepted basis which we call "health," we are in condition to commence the discussion of deviation from this in all degree, or what is termed "disease,"—and we accept as our understanding of this word that it is simply "perverted nutrition."

*This naturally gives us, that Dental Pathology and Therapeutics consist of such application of general facts relating to diseased conditions, together with such statements of the treatment deduced therefrom, as may be subservient to the requirements of dentistry.*

A knowledge of anatomy and physiology is, of course, indispensable to the deduction of these principles, but an extended observation of disease itself in the living body, as well as a thorough investigation of its effects in the dead subject, together with a careful consideration of the causes of those effects, are of equal importance for the obtaining of a proper amount of data from which to accomplish the desired object.

The study and classification of the various *essential* precedents to disease is called "Etiology," and we find at once presenting, as probably the most particularly important point of this investigation, the distinguishing between the *apparent* and the *real* causes.

The first division of these causes is into "intrinsic" or within the body, and "extrinsic" or outside of the body. The *first* pertains to defects of organisms or constituents of the economy; the *second* embraces all other causes which have power to act upon either mind or body, as passions, temperature, mechanical, nutritive, medicinal, and other like agencies.

Ordinary causes of disease, however, do not invariably result in its production, for to some the most reckless abuse, or the most indigestible food, is apparently powerless for harm, and long-continued exposure to the greatest changes of atmosphere and temperature leaves them unscathed. We explain this by admitting the difference of the power of "vitality" in different individuals to resist deleterious influences; but as there is this frequent failure to recognize that relation between exposure and result, which we are accustomed to accept as indicative of cause and effect, it has been found necessary to make a subdivision of causes into "predisposing" and "exciting," and grant the *general* necessity of a combination of both for the production of disease, and also admit the possibility of almost any cause being classified under certain circumstances as either predisposing or exciting,—as, for example, enfeebled digestion might predispose carious teeth to excite severe neuralgia, and carious teeth might predispose to that enfeebled digestion which would excite severe neuralgia; and yet as decided classification as possible is evidently advantageous; to this end I shall accept that of Dr. Williams, who says:

"Predisposing causes of disease commonly consist of various circumstances which influence the functions or structures of the body in an unfavorable manner, yet short of actual disease:

I. Debilitating Influences.
II. Excitement.
III. Previous Disease.
IV. Present Disease.
V. Hereditary Constitution.
VI. Temperament.
VII. Age.
VIII. Sex.
IX. Occupation."

Which grouping, it seems to me, could not have been better prepared by the gentleman for the use of dentistry, even had he been a practitioner of our specialty.

The same author, after illustrating by examples the bearing of this division of causes upon cases coming within the scope of the general practice of medicine, passes to the consideration of the "exciting" causes, "which, operating on the body, especially when predisposed, may excite disease in it;"—these are divided into "cognizable" and "non-cognizable:"

Cognizable Causes.
I. Mechanical.
II. Chemical.
III. Ingesta.
IV. Bodily exertion.
V. Mental emotion.
VI. Excessive evacuation.
VII. Suppressed or defective evacuation.
VIII. Defective cleanliness, ventilation, and drainage.
IX. Temperature and changes.

Non-Cognizable Causes.
I. Endemic
II. Epidemic
III. Infectious
Poisons.

When we come to treat of dental disease, this classification also will be found to be almost, if not entirely, necessary to cover the various causes which we have to recognize in the treatment of cases brought daily under our notice in ordinary office practice.

Next in order to the recognition of causes of disease we have to consider the nature of disease and its functional effects. Structural and functional changes form the elements of disease, and all diseases have several constituent parts, thus involving several of these changes; and we are therefore taught the necessity of making an analysis of a disease pathologically in the same manner as that of a tissue would be made physiologically,—thus we appreciate diseased condition of *structure*, as in muscular fibre, nervous matter, etc., and also like condition of *function*, as of irritability, tonicity, nervous properties, etc. Preliminary to this, we necessarily accept the knowledge of the function "Irritability" in its broadest sense as an ultimate vital property, possessed by all living, organized bodies, capable of being acted upon by appropriate stimuli and of responding thereto; "Tonicity," by which we mean that property which determines the strength of response; "Nerve-power," under which influence we admit the induction of sensation, motion (of all kinds), reflex action, and sympathy; and the elimination of the various recrementitious and excrementitious products which are the result of "secretion."

In connection with irritability and tonicity, we recognize that they may be either in excess or deficient; in connection with nerve-power and secretion, we observe excess, deficiency, and perversion. We are further taught the division of the elements of disease into two classes, the "primary" and the "proximate," the first referring to diseases of irritability, tonicity, nerve-power, secretion, the constituents of the blood and changes effected in that fluid by improper respiration, assimilation, etc.; and the second, to diseases of circulation and the consequent effect upon tissues,—this latter covers the ground of "anæmia" (deficiency of blood), "hyperæmia" (excess of blood), and "cachæmia" (perversion of blood), both general and partial, inducing either systemically or locally the conditions known as "sthenic" (strong), or "asthenic" (weak), and resulting in those textural changes which in deficiency is called "atrophy," in redundancy "hypertrophy," and in perversion "degenerations," "deposits," and "growths."

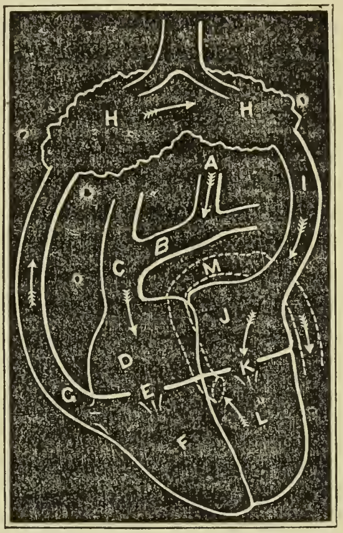
These primary and proximate elements are given to us as the subject-matter proper of pathology, and we are told that it "is by the study of them that we become acquainted with the materials of disease and their relations to each other; *we learn how special diseases arise, and of what they consist; how they produce their phenomena, and effects, and how they are to be known.*"

It is just here, at the link between General and Dental Pathology, that I wish to impress upon my readers the conviction that, just in proportion as these general considerations are thoroughly studied and appreciated, in the work to which I have referred, so will the practitioner of any specialty, guided by special anatomical, physiological, etiological, therapeutic, and manipulative knowledge, understand thoroughly, not only the mode of treatment to be adopted in certain unmistakable cases which occur constantly in practice, but the probable cause of any condition—how it is liable to arise, from what antecedent, how it may or can progress, what the probable or possible result may be, the rational method of attempting to afford relief, and the reasons for the course adopted.

One who in the practice of our specialty can do this, is entitled to rank as a scientific man, but to those who are ignorant of these things, dentistry is simply a trade.

It will now be recognized that reading upon the subjects alluded to in works upon General Pathology will span the chasm between "normal circulation," with its normal nutrition and normal sensibility, and that altered circulation, in various phases, which I wish constantly to impress, is the basis for my endeavors to impart a practical understanding of the diseased conditions met with in the routine of our specialty and the rationale of their cure. It seems to me, moreover, so important that the clearest idea of circulation, *as an act*, should be possessed by my readers, that I cannot refrain, at this point, from introducing, in a concise manner, the few salient physiological considerations which refer to its inception, thus compacting, in relation to the "Blood," its derivation, circulation, alterations of circulation, and their results. Again let me say that these are the intimate and continual associates of dentistry. Upon a knowledge of them depends *positively* the certainty of success in a large proportion of our operations,—nearly all of our difficult ones are satisfactory only just in proportion to our understanding in this direction. In the performance of such operations, it is impossible one should accidentally adopt entire the proper course to pursue; and if one thoroughly and practically follows the indications which will force themselves upon the mind as the result of this study, it is equally probable that practice cannot be other than satisfactory to patients and advantageous to practitioners.

There is no routine, strictly so to speak, in affairs of this kind. Every case has, more or less, its peculiarities,—it may be of temperament, it may be of magnitude, it may be of length of duration, it may be of rapidity of progress; in fact, its "may-be's" are endless, and *each* requires the exercise of educated judgment and practical knowledge. Without these one voyages upon a sea of doubt, at the mercy of the winds and waves of chance; with them one has a chart of duty spread before him, plainly pointing out every rock or shoal, and clearly showing the path which best promises the accomplishment of that which has been undertaken. Such practice, as time rolls on, becomes *intelligent experience.* This is my reason for viewing this matter as of so much consequence; thus is incited the effort to engender the same feelings in others at the commencement of my labors, and I trust that every page of special practice will give ample proof of the correctness of my position.



A, Thoracic duct; B, Left subclavian; C, Superior or descending vena cava; D, Right auricle; E, Tricuspid valve; F, Right ventricle; G, Pulmonary artery—venous blood; H, Lungs; I, Pulmonary vein—arterial blood; J, Left auricle; K, Mitral valve; L, Left ventricle; M, Aorta.

When food is taken into the mouth, the first process which it undergoes is that of mastication; the motion necessary for the performance of this act, together with the presence of the substance in the buccal cavity, acting as combined irritants, causes a flow of saliva, by means of which the food is put into the proper condition, in the shortest time, to be swallowed. It passes into the pharynx, and thence, by means of the œsophagus, it is carried through the cardiac orifice into the stomach. By the peristaltic motion of this organ, it is thoroughly triturated and intermixed with the gastric and supra-diaphragmatic secretions, and becomes a sort of pulp, termed "chyme." This, in due time, passes out through the pyloric orifice into the duodenum or first ten inches of small intestines, and here the chyme is changed into "chyle" by the admixture of the biliary and pancreatic secretions. The mass is now composed of two species of material,—the one nutritious, and the other excrementitious; and during its passage through the small intestines the separation of these is effected. The nutritious is taken up by the "lacteals" and carried by them through the "lymphatic arrangement" into the thoracic duct; through this it is emptied into the left subclavian vein, where it becomes mixed with the returning blood, and *restores the amount* of that fluid, which it finds in reduced quantity from the systemic demands which have been made upon it. The chyle, having now become a component of the venous blood, passes with it through the left subclavian into the superior or descending vena cava, and thence into the right auricle; here it meets the returning blood of the trunk and lower extremities, which is poured also into the right auricle through the inferior or ascending vena cava. The venous blood, having thus far become refitted for circulation, is forced by the contraction (systole) of the auricle, through the opening called the ostium venosum, into the right ventricle; this next contracts, and the fluid, being prevented from passing back into the auricle by the closing of the tricuspid valve, is forced through the pulmonary artery into the lungs. At the mouth of the pulmonary artery are placed three membranous folds, which are called the semilunar valves; these, by closing, prevent the return of the blood into the ventricle during its relaxation (diastole).

In the lungs, the process of "aeration" is accomplished, and, concomitant with this, the venous blood is changed into arterial; it then passes through the pulmonary veins into the left auricle; this contracting, it is forced through the ostium arteriosum into the left ventricle. The opening between the left auricle and ventricle is closed by the mitral valve.

The blood has now traversed the route from the right to the left side of the heart, *via* the lungs; this is denominated the "pulmonic" or "lesser" circulation, and it is now ready to commence its "systemic" or "general" circulation. For this purpose it leaves the left ventricle through the aorta, the mouth of which is closed by its semilunar valves, and thence, by means of the various arteries, it is conveyed into the arterial capillaries throughout the entire system. The arterial capillaries inosculate with the venous capillaries, and it is during the passage of the blood through this minute form of vessel that we study the various phases of "altered circulation."

The contractions of the heart, which have been spoken of as aids to the propulsion of the blood from one place to another, give rise to a peculiar movement of this fluid in the arteries, to which is due that important auxiliary in diagnosing, which is called "the pulse." For ascertaining the frequency and character of pulsation, the radial artery at the wrist is generally used; though, for various reasons, it may be taken over the heart, or from the arm, temple, neck, thigh, etc. The characteristics of the healthy pulse are a proper number of beats *per* minute, neither too hard nor too soft, moderately strong, and equal in duration of pulsation and interval.

Under six divisions may be classed nearly, if not quite, all the varieties which are mentioned by any author:

I. Frequent and slow.
II. Quick and sluggish.
III. Hard and soft.
IV. Regular and irregular.
V. Full and small.
VI. Strong and weak.

The *frequency* or *slowness* of the pulse refers to the number of pulsations in a certain length of time, which, by common consent, is *one minute.* The average of normal frequency is:

| | |
|---|---|
| Fœtal | 140. |
| Birth | 130. |
| 1st year | 110. |
| 2d year | 100. |
| 5th year | 90. |
| 10th year | 85. |
| Puberty | 80. |
| Adult | 75. |
| Old age | 80. |

Exceptions to this have been noticed in which the adult pulse has exceeded 100 in frequency, and reached 30 or 40 in slowness, without any apparent existence of disease. Bodily exertion and mental emotions, as fear, anger, joy, and expectation, have great influence on the pulse, and should therefore always be recognized. The maintenance of the erect position increases frequency about 10 beats, and the recumbent position reduces it about 5 beats.

*Quickness* and *sluggishness* refer to the length of duration of each pulsation,—quickness indicating irritability, usually conjoined with debility, and sluggishness indicating exhausted irritability and debility.

*Hardness* and *softness* refer to compressibility,—moderate hardness in adult life being indicative of general strength; while softness, especially if coexistent with slowness and smallness, is indicative of extreme prostration and, it may be, of approaching dissolution.

*Regularity* and *irregularity* may refer to any peculiarity of either beat or interval, and is usually ascribed to "nervous disorder," or is "idiosyncratic."

*Fullness* and *smallness* refer to volume of pulsation, and is that peculiar class of pulse which must never be relied upon *alone* as meaning anything, as fullness may result from weakness or from strength, as general plethora or atony of arteries, etc.; and smallness may result from general anæmia or extreme tonicity of arteries, as well as other equally unlike causes. These characteristics are, therefore, *always* viewed in connection with others

*Strength* and *weakness* refer usually to results accruing from general condition; therefore, what is technically termed a strong pulse is presumptive evidence, at least, of a healthy, vigorous state of system; while a weak pulse would naturally be considered indicative of an opposite state of things, and we have in connection with want of volume and non-resistance to pressure its peculiarity of feeble impulse.

(To be continued.)

# A CONSIDERATION OF SOME OF THE DEFECTS IN RUBBER AS A BASE FOR ARTIFICIAL TEETH.

BY JOHN C. K. CROOKS, M.D., D.D.S., HONEOYE, N. Y.

It is often said that "nothing which comes from the hand of man is perfect." Let the saying be true or false, of one thing we can be quite positive, and that is, that many of man's inventions, although of priceless value, have their imperfections. This can be said in particular of nearly, if not quite, all the bases which have ever been used for artificial teeth. While "continuous-gum work" approaches more nearly than any other to a beautiful and exact imitation of Nature, yet it has its faults,—so much so, that the dental profession will still go on in the great exploration for something better. Rubber, on account of its cheapness, the ease and facility with which it can be worked, and its adaptiveness to the wants of the masses, has almost taken the world "by storm;" it nevertheless has imperfections, which would consign it to oblivion in a very brief period if any other compound could be found free from them while equal to it in other respects.

Of one or more of these defects I desire to speak,—for the sake of pointing out their remedies so far as is possible, that it may become all the more valuable to those who esteem it, or so long as it remains the base in general use by the profession. What I have to say may be well understood, and undoubtedly is, by hundreds of dentists, and perhaps a great deal better than I understand it; but this does not assist those who have experienced the difficulties of which I shall make mention, and who have never had the time or patience to work out the remedy for themselves.

The first defect to which I shall call attention is the disposition of the rubber to contract while cooling after having been vulcanized. This defect, were the contraction *considerable*, would be a very grave one,—indeed, would be insurmountable in the construction of plates for artificial teeth; but as it is only moderate, it can be overcome, in a measure, by judicious management.

My attention was first called to this peculiarity of vulcanized rubber, by finding one or more blocks broken in a full set of section teeth when I removed them from the flask. At first I thought that I had used too much force in bringing the halves of the flask together in packing, but I soon discovered that this could not be the case, for several reasons: first, the greatest care in packing made no difference in the result; second, the fractured teeth were always broken in the same manner,—the gums from the teeth, transversely across the block, or, when the force was slight, simply breaking away the beveled portion of that gum imbedded in the rim of the plate; and lastly, the teeth would often break, even after their removal from the flask, and while I was congratulating myself upon my success!

But the breaking of the teeth was not the *only* evidence to me of the contraction of vulcanized rubber while cooling. Occasionally I would, from some unaccountable reason, have a plate so changed in form as to entirely lose its adaptation to the mouth! At first the cause of the difficulty was beyond my comprehension; but after a time, I discovered that it almost always occurred when I had to contend with a palate more or less deeply arched, producing that abomination to the dentist, a "rocking plate." I had already overcome this difficulty, as occasioned by the expansion of plaster of Paris, so that I had not to look in that direction for trouble; and being able thus to exclude a very common cause, there was no other remaining which could account for the phenomenon save contraction, and I was the more strengthened in the belief that this was the force in operation, as the breaking of teeth and "rocking plates" went along quite uniformly together.

Not being entirely satisfied, however, with these conclusions, in reasoning upon the subject, I asked myself this question: If it is contraction of the rubber, where, in a full upper plate (upper plates being the ones most affected), will the greatest changes take place? The only answer to this question which could be given, or which would be at all admissible under the circumstances, would be in that part of the plate (laying aside all counteracting forces) where there is the greatest amount or breadth of material. As, in upper plates, this is from side to side of the plate between the molars and from the incisors to the posterior border of the plate, if there is contraction, how will it affect the plate? At first thought, it would be reasonable to suppose that the contraction will be equal in all directions; but this is not the case. The teeth being placed in an arch, the incisor sections constitute really the key-stones of that arch, and are, consequently, immovable, while the sides of the arch are free. This being true, there would not be as much change antero-posteriorly as from side to side, where there is less resistance, which I found to exactly correspond with my experience,—"flat plates" (plates for mouths with little or no arching of the palate) contracting so as to lessen the convexity of the palatine portion, or, in other words, straighten the slight palatine arch, and in consequence of its being slight, in such manner that it would not quite touch the mouth at this point, while plates greatly arched would have the convexity increased, and hence a rocking plate, and one a trifle too narrow for the mouth. In the one case the contraction is at the expense of the convexity of the plate,—the little palatine arch it possesses,—while in the other it is at the expense of the breadth of the plate,—lessening the distance between the sides of the arch, or from molar to molar.

Coming to the conclusion, then, that the material I was working was at fault,—that contraction of rubber was not a myth but a reality,—that it was often so great as to break the teeth upon the plate, or distort it so much as to render it useless,—the discovery of a remedy became a matter of considerable consequence.

While prosecuting my inquiries in this direction, I soon ascertained that it was much easier to avert some of the consequences of this property of rubber than it was to get rid of the cause itself. For instance, I could prevent my teeth from becoming broken by simply grinding the extremities of the gums, which I had been accustomed to bevel so that the rubber would overlap them, in such manner that the rubber when it contracted could have no hold upon the teeth. At first I reversed the bevel, making it very slight, but I found that this was not necessary,—that a square shoulder answered every purpose, and was an improvement,—constituting a good base to oppose to the rubber and resist the force applied to the teeth when masticating. This accomplished all that was desired so far as the teeth were concerned, but what of ill-fitting plates? In this particular I was sorely tried, till at last this thought occurred to me,—if I can harden my plaster of Paris so that it can hold the plate in shape better while cooling in the flask, and if I cool my plate very slowly, and thus develop but little force at a time so as to enable the hardened plaster to resist that force, can I not accomplish what I desire? I acted upon the suggestion at once,—allowing my plaster of Paris more time to dry (having learned by experience that dry casts did not soften much in the vulcanizing oven), and then when my case was properly vulcanized, instead of cooling off suddenly, I started the screws of the oven, and set it away until it was of the temperature of the surrounding atmosphere; then removed the flask, and completed the operation by plunging it into cold water. I succeeded by this process,—beyond my expectations,—so much so, indeed, that I can safely say that I am a stranger to "rocking plates" or their converse.

Another defect in rubber as a base is *its disposition to irritate* some mouths, often so severely, from idiosyncrasy, as to render it difficult, if not impossible, for it to be worn. Where this is of an aggravated character, there is no remedy save to resort to a metal lining for the plate or abandon it entirely; but when slight, it can frequently be overcome by vulcanizing the rubber so as to make it very hard, thus changing its chemical properties somewhat, as well as locking up more perfectly within the hardened rubber the mercurial compound which constitutes its coloring matter, or by leaving the plate out of the mouth at night,—which, in my opinion, ought *always* to be done with rubber plates,—thus freeing the mouth, for a time, from the process of heating and irritation to which it is subjected. Again, the rubber may prove an irritant only occasionally, from some peculiar condition of the system, in which case I have always found that if the plate is not worn for a brief period, and the free local and constitutional use of chlorate of potash is resorted to, a speedy and lasting benefit will be experienced.

A still further defect in rubber, but which is not peculiar to that base, is its tendency to become discolored upon wearing,—the palatine portion, and sometimes the whole plate, being changed to a dark-brown or black from a deposit upon its surface. This is sometimes very annoying to the person wearing a plate so affected, although it is entirely unattended with any deleterious results, either to the plate or the mouth. Notwithstanding no harm ever arises from this source, save that it is somewhat more unsightly than the usual color of the rubber, it will be well enough to know how to remove it, as well as to get rid of the limy incrustations which are occasionally seen between and upon the teeth, particularly upon the molars opposite the duct of Steno. All such depositions, no matter of what character, can be speedily removed by washing thoroughly in diluted muriatic acid (one part of muriatic acid and three parts of distilled water). When this is done, it should be borne in mind that, although diluted, the acid is sufficiently strong to irritate the mouth, if not to act as an escharotic, and should be well cleansed from the plate and teeth before replacing in the mouth, or in other words, neutralized completely, by immersing in a strong solution of carbonate or bicarbonate of soda or potassa.

There are other and graver defects in rubber than any which have been named, and of which I might speak, but the limits of such an article will not permit. Notwithstanding all these, the mentioned and unmentioned objections, it would be exceedingly difficult, should this compound once be removed from the laboratory of the dentist, to replace it with anything equally good and equally cheap. That it has its faults we have seen, but when we consider the thousands, ay, millions, of plates that have been manufactured from it and worn with pleasure and profit, and that, too, by persons who could afford no other, we would scarcely be adhering to the truth did we not, after all, acknowledge that vulcanized rubber has been a blessing to the civilized world at large, if not to the dental profession in particular.

# A CASE OF CONGENITAL DEFORMITY OF THE FACE.

BY HARRISON ALLEN, M.D.,
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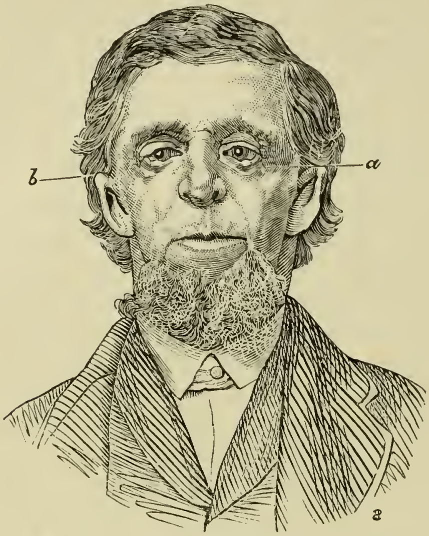
WILLIAM MULLEN, aged fifty-four, married, and the father of four healthy children, came to Philadelphia for the purpose of having a set of artificial teeth prepared. He came under the notice of the writer, at the clinic of the Philadelphia Dental College, during the session of 1871–72. The following observations were at that time made upon the case:

The patient was of medium stature, perfectly healthy, and has been able to attend to his calling, that of a farmer, with steadiness and success. The face had a peculiar expression: it was beaked,—*i.e.* the nose being the most prominent feature (Fig. 1). This was due not only to the recession of the labial region and the small size of the palpebral fissures, but to the actual size of the nasal prominence. The cartilaginous portion was inclined to a vertical position, while the nostrils were compressed. The superciliary arches were well defined, but the eyebrows were scanty. The palpebral fissures were small, and more than usually drooping at the external canthi. The lower eyelid was curiously scalloped from the outer sclero-corneal margin to the outer canthus. Strictly speaking, the malar eminence was not an eminence at all, but a depression, which was deepest at a point below the outer canthus. This was associated with a receding small angle of the lower jaw. The masseter muscles were weak. The line of anterior border of these muscles, usually felt within the mouth as a firm musculo-tendinous column, immediately in advance of the coronoid process, was inconspicuous.

Fig. 1.



Judging from the extremely defective power the individual exercised upon the elevation of the angles of the mouth, it was thought that the zygomatic muscles were absent. This fact would appear to be in harmony with the rudimentary character of the malar bone already noticed. In speaking, the central portion of each side of upper lip was markedly elevated, showing the presence of powerful elevators of the upper lip. This peculiarity gave the face a sneering expression, which singularly lacked harmony with the amiable and reticent bearing of the subject. The muscles of the face were in exact symmetry. The vertical elevators of the lips and angles of the mouth combined with the buccinators laterally, and the depressors inferiorly, were sufficient to maintain the balance of power. The zygomatici are thus seen to be non-important muscles. This conclusion is strengthened by our knowledge of the arrangement of these fibres in the mammals generally. In none of them are the zygomatic muscles (rarely present as in the horse) inserted into the angle of the mouth.

Upon examination of the interior of the mouth, both jaws were found to be edentulous. A medium cleft was seen extending from the incisorial rugæ, backward, the entire length of both hard and soft palate. Its anterior extremity was of an oval shape. Its greatest width, namely, at a point midway to the extremity of the superior dental arch, was five lines. The inferior turbinated bones were, as is always the case in congenital cleft of the palate, large, cushiony, and extended well down to near the level of the cleft. The sensibility of the exposed parts was much less than in the protected scrolls. They were both seen to project backward into the naso-pharyngeal space beyond the posterior edge of the septum of the nose. This was due to two causes: first, to an actual increase in the size of the scroll, but mainly to a deficiency at the lower posterior portion of the vomer.

The positions of the Eustachian fossæ were plainly seen. Upon the right side the fossa was closed laterally. The small probe could not be introduced. A thick, rounded fold of tissue extended as a continuation of the lower edge of the hook cartilage of the Eustachian canal downward along the lateral wall of the pharynx nearly on the so-called angle, namely, that point where the lateral joins the posterior wall. The fossa of Rosenmüller was reduced to a slit-like depression. It was divided transversely by a well-defined bridge of tissue, the probable remains of a space between obliterated follicles.

The relations upon the left side of the naso-pharyngeal space were not changed from the normal standard. The inferior edge of the Eustachian fossa was depressed, as is always the case in cleft palate, owing to the fact of the salpingo-palatal fold (due to the levator-palati muscle) being withdrawn, and lost in the lateral wall of the pharynx.

Fig. 2.

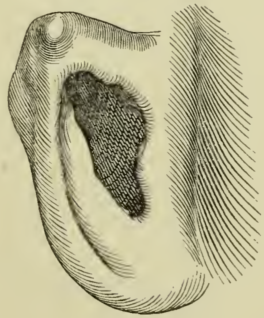
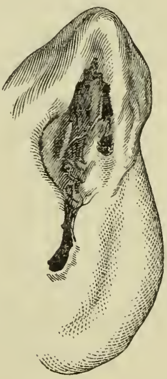


Fig. 3.



The auricles were conspicuously deformed. The left auricle (Fig. 2) was truncated at the upper third, and permitted to form a well-defined angle at the outer superior margin. The lobe was large, but not freely pendent from the general integument of the retro-maxillary fossa. The right auricle (Fig. 3) resembled that of the left, excepting in the upper angle, which was more acute and salient. Upon the left side the external meatus was so far contracted as to admit of the introduction of an ordinary surgical probe to the distance of four lines, at which distance the canal terminated, and slight pressure exerted directly inward—*i.e.* toward the position of the membrane of the tympanum—excited coughing, showing that the tympanic branch of the glosso-pharyngeal nerve was distributed in a normal manner. Upon the right side the meatus ended in a cul-de-sac two lines from its orifice. Deafness was almost absolute. The watch test was null both at vertex and at the ear. No exact conversational tests were employed; an articulate shout practiced near the ears was heard with comparative facility.

# PROFESSIONAL OBLIGATIONS.

BY M. H. WEBB, D.D.S., LANCASTER, PA.

Abstract of a paper read before the Harris Dental Association of Lancaster, Feb. 13th, 1872.

As practitioners of a profession which has taken position with other liberal professions, there are obligations resting upon us, the proper fulfillment of which alone can stamp us worthy of our calling.

Unfortunately this, as well as other professions, is dishonored by those whose self-esteem is so developed that study, reading the dental journals, and attending meetings of associations are to them superfluous.

There are modifications of this class—some malpracticing for vainglory in the community in which they are located; others, for the mere purpose of gaining a competency; and some who, feigning to have a desire to practice dentistry properly, do so mainly for the remuneration, without consideration of the immense value of the priceless organisms committed to their care.

These are the men who, observing the practice of those who feel the responsibility resting upon them, and who are earnestly meeting their obligations in the light of science to the best of their ability, say it does not *pay* to practice on such principles, when indeed they either do not comprehend them or see through only a monetary veil.

A physician is expected to avail himself of every scientific attainment; to do all in his power to aid nature in retrieving his patient's health; so, also, is the dentist expected to do all that in him lies to restore health and save the teeth of those who seek his services. He is under obligations to *save* rather than extract, and if he fails to do this, he is guilty of a greater crime than he who in the polluted atmosphere of a gambling-hell robs his fellow-man of his dollars.

The latter may, by perseverance and energy, be regained, but the teeth, more precious than diamonds, can never be restored, and the victim pursues his journey through life as best he can.

When Dr. Atkinson stated some time since that "it is a sin and a shame ever to extract a tooth," we, with many others, held adverse views to those offered; but as we come nearer the proper fulfillment of our obligations, we will doubtless commend rather than ridicule such an assertion. If every practitioner would have this spirit infused into him, and so qualify himself as to be enabled to practice in the same spirit,—in a word, if he would "do unto others as he would that others should do unto him,"—the time would soon come when such sentiments would be fully and practically realized, and there would be no teeth extracted and no substitutes required. But many, perhaps a majority, of those who claim for themselves a place in the profession, exclaim, That cannot be done in all communities. Has it been tried? Have those who enjoy the best reputation, and who probably are the best practitioners in their respective communities, been bold enough to proclaim that teeth can be saved, and if their patients would not take their advice, said to them, We will not extract teeth needlessly? Have they taken this stand, and obeyed the behests of their conscience by refusing to extract any and every tooth which could be saved, looking only to their obligation so to do, and not at the remuneration? The wholesale and needless extraction of teeth is a practice too prevalent in almost every community; and so far as remuneration is concerned, they would gain more by positively refusing to extract all teeth, with perhaps the exception of those in a necrosed condition, and those where chronic alveolar abscess or periodontitis, which will not yield to remedies, exist.

There is an impression upon the minds of practitioners, extending from those who exercise a little doubt, down through all grades of so-called dentists, that first-class operators do not secure the compensation which they justly deserve for operations on the natural teeth.

A surgeon secures a compensation for his services in assisting Nature to rid herself of an abnormal growth, or to restore a diseased organ or part, commensurate with his skill and reputation, and why should not the same be true in our profession? Equality among dentists, founded upon the same financial basis, belongs to the past. Like the skilled surgeon, he who assists nature to restore to health and save the teeth and associate parts, and who performs the best operations, will be the one who can secure the highest compensation for his services.

One of our members has said: "Why a system of fraud and quackery should be supported by any class of people, is a question entirely beyond my comprehension." He has inquired: "How is it that the natural bias of the public mind seems to gravitate toward deception and humbug, rather than to a proper appreciation of the scientific, the noble, and the good?" Superficially, this would indeed seem to be the case; but we will find that fraud and quackery in our profession are not supported in any community where even a minority of practitioners are *true* to the mandates of reason and science and to the obligations resting upon them.

To explain what is correct practice, and most beneficial to those who seek our services, and then cater to the wishes of the patient, is not sufficient. We must carry our high-toned principles into practice. If we extract teeth needlessly, and insert substitutes (a practice resorted to by those who are either incompetent to save the natural teeth, or who disregard the rights of their patients), we place ourselves on the same plane with them.

So long as dentists fail practically to recognize their obligations,—to carry these convictions into execution,—so long will quackery prevail, to the disgrace of the profession, and irreparable injury to all who may be so unfortunate as to become its victims.

The question may arise as to the advisability of allowing patients to leave the office because of refusal to deprive them of their natural teeth, on the probability that they will become the victims of quackery. If they do not properly apprehend the importance of saving their teeth, after giving them proper information and advice, the practitioner has done his whole duty. The patient should be allowed to leave rather than that the operator should violate any conscientious conviction. If the services of the quack are obtained, and they lose what they can never regain, they will remember and give to others the advice of him who was *true* to his obligation, and he will surely reap a rich reward sooner or later for his adherence to duty.

They who so disregard such advice, entertain the opinion that when decay has pursued its course to any extent there is no remedy. They have been so told by practitioners, who, through incompetency, uselessly extract teeth ; and beside, they or their friends have had material for filling teeth so imperfectly placed in cavities of decay that it soon forsook its position. This is the cause of the opposition by many to the filling of natural teeth, and unfortunately, they do not award the failure where it belongs—to the operator.

To sacrifice no tooth needlessly should be our aim, and if we are in full practice, and cannot attend to any but those desiring first-class operations, we should direct our students to wait upon such persons, not permitting the extraction of teeth when necessity does not require it, but do all that is possible to save them. If they are not willing to pay for the best operations, we should teach them that the natural teeth can be saved, and are then worth far more than artificial substitutes, and make some arrangement by which their teeth can be cheaply and for a time well filled. This had best be done by students, because it is not well for a practitioner to place his abilities at too low an estimate.

In this way will we be enabled to educate the community to a proper appreciation of the natural organs, and to entertain a high regard for him who saves the natural teeth, and with skillful hand restores their original form and usefulness.

Then let us practice for nobler purposes than those which too often form the objects of human ambition.

Let us not forget that upon ourselves depend our professional advancement and success, and that if we thoroughly qualify ourselves and then faithfully fulfill our obligations, those who now practice from unworthy motives will be found to follow our example.

Let us hope that a law will be enacted, substantially like that so strenuously supported by Prof. McQuillen, not only in this State and nation, but throughout the civilized world, which will compel every individual commencing practice to be a graduate of a reputable dental college, and that thus there will be erected a formidable bulwark against quackery. Then our colleges will be better supported, encouraged to a higher standard of qualification for graduation, and a more elevated professional culture ensue.

## THE CELLULOID BASE.

### BY ARTHUR C. FORD, ATLANTA, GA.

An article in reference to the celluloid base appeared in the February number of the *American Journal of Dental Science*, from the pen of W. H. Eames, D.D.S. (written originally, I believe, for the *Missouri Dental Journal*), which evinces, to my mind, that Dr. E. has expressed a crude opinion upon a material with which he has but imperfectly experimented, and therefore knows not how to manipulate. I do not consider that I am above ordinary men in capacity, and I am confident that any intelligent dentist can accomplish that which I have. It is true, I have not made many dentures upon this base, as I have but little time to devote to artificial dentistry, but *every plate* I have made is still being worn and giving satisfaction.

My first case was a partial plate of three teeth for myself, each tooth being isolated, right lateral incisor, and the first bicuspid on each side (upper). This was made in September last; up to the present time I find no deterioration or alteration, and apparently it is as good as when first inserted.

The second case was a full upper denture for a lady patient (who had already worn three or four rubber plates), made early in November, with which she is especially pleased, and sends me word by her son, to-day (February 19th, I having sent to make special inquiry), "that she infinitely prefers it to any plate that she has ever worn, and that it has never given her the slightest inconvenience, and adheres as tightly as at first," and the adhesion was remarkably strong.

The next plate was a partial set, and has been worn about two months by an unusually nervous patient, who would scarcely brook the slightest inconvenience, and yet I have heard nothing from her since its insertion.

I have constructed some others, but these three are my earliest experiments. I have not failed as yet; and they are pieces I "put up" on purpose to test its durability. I am not, of course, quite satisfied as yet as to its permanency; but at all events I have so managed its manipulation as to cause it to last intact for more than "*eight weeks*," it having in no case either warped, shrunk, or perceptibly changed.

I must say, I think it reprehensible in any one to publish such an article as Dr. E.'s, without the greatest caution and certainty of being correct in his estimate of any novelty, as it is liable not only to injure the sale of the article decried, but, what is worse, to deter many from using that which might be a benefit to themselves and their patients; for, unfortunately, too many men depend upon their neighbors' brains instead of their own. This very article of Dr. E.'s I heard cited as authority for the worthlessness of celluloid by some before I saw the article. Thus a useful material is in danger of being lost to the people and the profession. I would say here that I experiment with nearly everything that is introduced into our profession—every base and every instrument or appliance that appeared the least feasible or desirable. I tried the pyroxyline base, and failed wretchedly; but did not publish a list of failures, as I ascribed my misfortune to my own lack of skill in manipulating, as I know some produced very creditable dentures with it. I saw some specimens, with the appearance of which I was greatly pleased; but I have not been able to produce like results. It requires, I presume, great care and much time. Perhaps Dr. E. is laboring under the same embarrassments with celluloid that I did with pyroxyline. His mistake consists in his blaming the material instead of himself.

I have no interest directly or indirectly in this base, and write this article solely as a duty. I consider that every professional man owes it to the profession to which he belongs to refute any and all mistakes promulgated, whether intentional or otherwise, that are calculated to throw discredit upon any improvements, whether of instruments, modes of manipulation, or articles that may be of service to the profession at large; and I have therefore taken up the cudgel in favor of this base, as my personal experience in actual practice refutes Dr. E.'s assertion of its worthlessness. I carry the proof in my own mouth, and Dr. E. or any other dentist is perfectly at liberty to examine and have ocular demonstration.

In manipulating celluloid, I have no idea that those who employ water will ever succeed (though I may be mistaken), as I consider it takes a greater heat than 212° to thoroughly soften the material. I do not commence to close the flask (*i.e.* with the clamp) until the thermometer indicates the oil at 260°, and after the flask is brought thoroughly down, I keep it in the oil at 310° for from five to ten minutes; this, I think, helps to toughen or rather mature the base. I do not think the oil should be used more than twice, and I think better results are attained by using fresh oil each time. I would, however, be glad to hear from some who have been working this base more extensively; but I do not desire the opinion of any except those who always strive to attain the highest results. Some may assert that the celluloid will not warp as long as it is worn *continually* in the mouth, but that if left out for a few days it will be found to have altered its shape (this was said of the pyroxyline, how true I know not); but I have caused it to pass this ordeal also, for lately, having been indisposed and confined to my room, I took out my plate, and kept it out for about four or five days; when I replaced it there was no change.

In addition to the above, I would say that my experience with this material is that it makes a much handsomer plate, is lighter, adheres closer to the teeth, and adapts itself more closely to the mouth, and, *if durable*, I have no hesitation in asserting it to be decidedly preferable to rubber. I have used exclusively the pink color in all the dentures I have made, though I have experimented with the translucent horn-colored base somewhat; but from some cause, to me unknown, it has always come out of the flask honeycombed and worthless, and I have heard like complaints from others. Can any one explain the cause? There has not been sufficient attention paid to this base, in my opinion. Even the patentees or proprietors do not seem to have given all the information that they might. I trust they will be more communicative in the future, and give us more light.

I do not desire to be understood as being a special advocate of *any* of these cheap bases. I prefer gold, or even platinum, the teeth being attached with rubber, if preferred; but if these bases must be used for economy's sake, I prefer having a selection, and not being tied down to one article, especially such a filthy one as rubber, either with or without license.

By the by, can teeth be attached to metal plates by the celluloid? I have tried it, but failed, though I think the fault was mine. I have not had time to complete my experiments. If any one has been successful in this, I would be glad to know it.

# SMOOTH-FACED PLUGGERS AND STEEL MALLET.

### BY ELEAZAR PARMLY BROWN, NEW YORK CITY.

THE two great innovations in the practice of dentistry which are now agitating the inquiring minds of the profession, are the plugger, non-serrated, and the steel mallet, non-vibrative.

Having used the two in conjunction for nearly a year, and being confident of the positive success attained thereby, a few words on the subject may not be amiss.

A patient will not allow the use of the old heavy lead mallet after the steel one has been operated with. The steel mallet jars the brain less than the lead, as the blow from it must be heavier than the steel to produce the same amount of condensation in the gold,—part of the force of the blow from the lead mallet being lost in the give of the soft mallet to the end of the instrument. No headaches follow operations on the upper teeth from the use of the steel mallet, with light blows and small-pointed instruments.

Fear of pain keeps one-half the people from the dental chair, and causing pain to the patient injures the nervous system of the operator.

Thirty thousand blows of a light steel mallet, with small, smooth-pointed instruments, slightly beveled, making an acute angle on one edge of the point to prick through and fasten each piece of gold before welding, producing no pain to patient, no risk of fracture to enamel, a harder filling and better adaptation to the margins of cavity, is much better than ten thousand blows with the lead mallet, three times as hard, with more pain and increased risk of fracture.

Adhesive foil, of any thickness up to thin plate, can be worked to advantage by this process, and will without doubt give better results to any careful operator than any other mode. Fillings thus inserted need no burnishing or malleting to get up a *surface* after trimming down the required amount, but leave, after filing and chiseling, a spotless and dense body of gold nicely adapted to the margins of the cavity.

A careful examination of the new non-serrated points, and the new non-vibrative steel mallet, just manufactured by S. S. White, will convince any thoughtful mind that they are worth a trial.

There is but one objection to this method—the small points and small mallet with lighter blows makes more labor for the assistant who mallets, but the superiority of the result more than compensates for the additional labor.

The public are willing to pay for value received, but they must be convinced they have received the value. How to convince them is the problem. Time will bring due appreciation, and with it will come ample reward.

I will give two cases as illustrative of the positions assumed:

Mr. M. B., thirty years of age, had two upper incisors built up in this manner from the gum, one-half of the crown of each. These were submitted to the somewhat unusual test of a kick from a horse, which so loosened the teeth that they could have been removed with the fingers, requiring weeks of treatment and care to make them fast again. A distinct dent or scratch from the iron shoe of the animal was on one of the gold fillings. Neither of the fillings was disturbed or loosened in the least, and still remain as perfect as ever,—now some six months since the accident.

The wife of a prominent lawyer of this city, who had avoided a dental chair for eighteen years on account of timidity, consented to a trial of this method of filling. The posterior half of crown of right upper canine was built up from below the gum; pulp alive; used adhesive foil. The time occupied was between six and seven hours; constant malleting; strokes of mallet carefully counted, over thirty thousand. Upon the rubber being removed, asked if she should come the next day to have another tooth of the same character filled. I think the lead mallet never called forth such a proposition from any one under such circumstances.

With this quartette of harmonious combinations, viz., steel mallet, small, smooth points, rubber dam, and adhesive gold, no operator can find excuse for not doing good, saving work.

## TREATMENT OF EXPOSED PULPS.

BY J S. K.

The narration of the two following cases may be of interest to some in the profession:

Charles M., aged seventeen, possessed of a *nervo-sanguine* temperament, vigorous constitution, had a deep and large mesial cavity in the left superior molar; tooth otherwise in good condition; pulp not exposed. All things being ready, I proceeded to filling.

The mallet-boy being inexperienced, an unlucky blow drove my instrument through the bottom of the cavity, crushing the pulp and carrying particles of the gold into the pulp cavity. This was followed by copious bleeding from the pulp. After waiting for the hemorrhage to cease, I proceeded to remove the gold I had already in place and *out of place.* I then washed the cavity and the exposed part of the pulp with creasote absorbed in a pellet of cotton, thereby entirely checking the hemorrhage. With the point of a small excavator I removed from the pulp-chamber some particles of gold, and repeated the washing of the exposed portion with creasote. I next partly filled up the cavity with a pellet of cotton wet with creasote; then with a second pellet dipped in "sandarac varnish," I covered the first.

Two days afterward the patient returned, and I removed the two pellets of cotton and discovered that *pus* had accumulated in considerable quantity; wiped away the *pus* with cotton and washed the cavity and pulp as before, until slight bleeding followed. The receding pulp seemed to evince considerable tenderness. I applied my cotton and creasote as before. In three days patient returned, when I found pus as before, but of a more watery character. Applied "rubber dam" to the tooth and again washed with creasote, or I might say, *flooded* the cavity with it, thereby carrying away all remaining particles of *pus*. I then mixed up a small portion of white oxide of zinc with creasote to the consistency of cream, and applied the same, gently pressing the mixture to the pulp in all its exposed parts, and filling the pulp-chamber and bottom of the cavity. I then mixed, in the usual way, a sufficient amount of oxychloride to entirely fill up the remainder of the cavity. After the lapse of seven weeks my patient returned, having experienced no inconvenience. I then removed a sufficient amount of the oxychloride to enable me to insert a gold filling. This tooth was filled the 12th of December, 1871, and has remained entirely comfortable up to this time.

Again, Miss C., aged nineteen, of phlegmatic temperament, had had her superior left second molar treated and filled with "Hill's stopping" by another operator.

I found the tooth very painful; removed the filling, and found sloughing of the pulp with *pus*. Treated the tooth precisely as in the former case, except that I have not as yet filled with gold. The oxychloride has now been in over six weeks. There is no soreness of the tooth, and the proof of its vitality is that the tooth shows sensitiveness on the labial surface close by the gums by scraping with an excavator. All things remaining right, I shall fill the tooth next month with gold.

White oxide of zinc, mixed with creasote and thinly spread over an exposed pulp, will prevent much of the pain that our patients have heretofore been subjected to in the application of oxychloride, and will also supersede much of the heretofore supposed necessary treatment of the pulp preparatory to covering or "capping." The two instances I have mentioned I regard as extreme cases, and therefore they the more fully set forth the value of successful treatment than many other cases I might have cited.

# PROCEEDINGS OF DENTAL SOCIETIES.

## FIRST DISTRICT DENTAL SOCIETY OF NEW YORK.

January 2, 1872. President Atkinson in the Chair.

Subject of the evening, consideration of Dr. Arthur's book, "Prevention of Decay of the Teeth." Dr. Jarvis, essayist.

After the reading of Dr. Jarvis's paper,* Dr. J. S. Latimer said: I had not believed in this method until I read Dr. Arthur's book. I tell my patients that a well-filled tooth may not be filled for life. I have met with eminent men who have said that they could not fill all teeth with gold and save them I cannot do it myself. I do my work as well as possible, and then tell my patients that henceforth they must be the dentist, and take proper care of their teeth, if they desire to save them. If they go away and disobey me, as they probably have disobeyed some one else, I cannot be responsible for the result. I estimate the slovens at ninety per cent. If patients will take proper care they can save most filled teeth, but for the slovens—we may as well separate in accordance with Dr. Arthur's method. I think there is no doubt of the propriety of cutting away the deciduous teeth, and I should advocate carrying children through the period of dentition in this way.

Dr. Atkinson. I have not given the book the attention that will enable me to say that I fully understand Dr. Arthur. I am glad the book was written, but I regret that such a state of things exists as to make it necessary. I am impressed with the feeling that Dr. Arthur has worked out this method, without coming much in contact with other men in the profession. I cannot wholly condemn the work, nor can I wholly indorse the paper just read. We strive to do too much; we attempt the whole; we do not grasp the principles involved. Our whole dental literature, up to the present time, proves that we are in our infancy. We have not yet grasped the principles so as to go forward, feeling sure we are right. Have we a fair show? How many families have we full charge of? We will not be a profession till we get to that point when we refuse to accept patients who do not take proper care. The curse of our profession is, that we have to get from it our bread and butter. Men do not get inspiration when moved by mercenary motives. The crucifixion of my life is, "What is it going to cost?"

It is not fair to say that teeth cannot be saved. We can't tell what are the probabilities, to say nothing of the certainties. If we have not cut far enough, and have not put in disinfectants (thymol), we cannot yet say we have filled teeth. If we have cut a little and washed out the cavity, we have not done all that should be done. Our progress is in the ratio of our earnestness. It is not yet accepted as true that decay is external. Dr. Arthur says in effect, what I have said time and again,—polish off Nasmyth's membrane and polish the ends of the enamel rods, and the teeth are safe. The old saw, "clean teeth, sound teeth," is still true.

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* Published in the Dental Cosmos for March, 1872.

Dr. Fitch. This is a grave subject. It comes home to us all, and the good of the community cries out to us for our highest efforts in this direction. Our teachings have been in conflict with this book, yet I see much in it to commend. The author has evidently given much thought to the subject, and there is running through the book a kind of special pleading for his method of treatment. To some extent there is much force in his position, and there is a great deal of good common sense in the book. Evidently he has been in the habit of making only flat fillings.

Dr. Varney. Judging by the illustrated case Dr. Arthur lays so much stress on, if he cuts and cuts till the wisdom teeth come through, by that time, it seems to me, the teeth will be considerably mutilated.

Dr. Kingsley. Any one who reads the book and hears the discussions on it, must see that it all comes to one thing after all, and that is—perfect cleanliness. This was taught by the Parmleys and by Dunning, and was the secret of the success of that school. They gained space and sacrificed tooth structure in order to secure cleanliness. You see the stress Dr. Arthur lays upon perfect cleanliness. Now, suppose you give to filled teeth the same attention as to those that have been filed, and see the result. It isn't the filing, it isn't the filling, it isn't the space; it is the cleansing of them. I say to my patients, I have done my best, and now it rests with you. If you ask me what I would do, I should say that I would not dare risk the file in that bad class of teeth. The book is antagonistic to the prevalent mode of treatment, but is well worthy of attention.

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February 6th. President Atkinson in the chair.

Continuation of the subject of the last meeting.

Dr. J. S. Latimer read two letters from Dr. Arthur; also some extracts from his book.

Dr. Bogue. Three-fourths of the book seems to be aimed at *prevention* rather than cure, and Dr. Arthur's standpoint seems to me to be that of a man who finds operations pressing upon him that he is unable, from lack of time, to perform; he therefore is seeking earnestly for preventive methods, hoping to avoid those difficult operations which consume the time and strength of the operator, and are so expensive and often painful to the patient. If we will but notice carefully, we shall find that those of us who are in the habit of performing those difficult operations, cannot properly attend to more than four or five patients each day, while in England, a dentist may not infrequently see twenty in a day. Somewhere, then, between these two extremes, it seems to me, is the point at which Dr. Arthur is aiming, viz.: to do the greatest good to the greatest number, and yet be faithful in each case.

Dr. Jarvis. Teeth frequently change their position after being filed. As a rule, they will drop together unless touched by an antagonist. If the occlusion prevents them from closing, this method may be safe,—otherwise not. Divest the teeth of enamel, and bring them together, and see the effect. You may see by a skull that they touch at a point only, seeming to be formed by nature to support each other. In cases where the space at the gum is large, and the attention of the patient is called to it, there will be no trouble in keeping them clean. To short, flat teeth that are not easily cleaned, may be applied the proposition I have made, viz., to enlarge the V above the point of contact.

Dr. Bogue. The teeth Dr. Jarvis speaks of, those that come in contact at a point, like two apples, may do for ideal teeth, but not for the long, slim, consumptive ones.

Dr. Jarvis. Decay is not at the immediate point of contact. It is just above, in most cases.

Dr. Fitch. I don't see the advantage of enlarging the V near the gum. Food will lodge there, and decay will be liable to recur. I believe teeth decay at the immediate point of contact. If we can get a surface clean and keep it so, it is comparatively safe. In nature we don't find these V-shaped cuts. For fifteen years it has been my practice to restore the shape of the teeth. I don't see weight enough in the book to induce me to change my practice.

Dr. Bronson. I don't feel like criticising the book. I don't feel competent to do so. I don't think any of us can fairly do so until we have had experience with this method. Dr. Arthur has laid down a set of principles, has followed them out, and is able to defend them from years of experience. I have not seen much in the book that is mysterious. To me it is full of suggestion. It has not brought me to the point of adopting his method, but it has modified the shapes of my fillings. There is a proper time to do all things. His method is to take caries in its inception, and therefore the teeth need not be badly mutilated. It seems to me that we exaggerate his separations. I follow his plan in the treatment of temporary teeth.

Dr. J. S. Latimer. I recently saw a case of caries by the side of, and extending under, a contour filling, that seemed to have been caused by acid preparations of iron. A tooth in the same mouth, having a proximal surface filed to an inclined plane and filled, remained sound.

Dr. C. E. Latimer. I indorse Dr. Arthur's method of polishing the teeth at the earliest indication of decay, and I think we ought to require our patients to do the same, giving them chalk to be used with floss or tape.

Dr. Atkinson. I don't feel like adding much to what I said at the last meeting. We are talking now as if dentistry had culminated, and as if we understood the principles underlying it, the contrary of which is true. Hence we find each man ready to announce that he has found the truth. This book is a tissue of contradictions, and so is every man's life a tissue of contradictions. As the Scotch say, every man takes from a book what he brings to it. I am with every one here to-night, and I am also against every one. Each one may see different aspects of truth. As Dr. Jarvis has said, the point of contact is not the point of decay. For the front teeth, *if we can get control of our patients*, this method may be a good one. Twenty patients a day are enough to send any man to the lower regions. Fill the teeth to the shape that nature gave them, and then give to them the same care that Dr. Arthur demands for filed teeth, and no man can say they are not safe. Children should be taught to clean their teeth as they are taught to say their prayers and count their beads. And the right method of cleaning is to brush the lower teeth up and the upper ones down, inside and out.

S. G. Perry, *Secretary.*

## BALTIMORE COLLEGE OF DENTAL SURGERY.

The thirty-second annual commencement of the Baltimore College of Dental Surgery was held in Baltimore, Thursday evening, February 29th, 1872. An address was delivered by T. H. Ferguson, of the graduating class; the valedictory by Prof. P. H. Austin, M.D., D.D.S. The degree of D.D.S. was conferred on the following members of the graduating class by Prof. F. J. S. Gorgas, M.D., D.D.S.:

| NAME. | RESIDENCE. | THESIS. |
|---|---|---|
| Robert Benjamin Adair | Georgia | Extraction of Teeth. |
| Francis Taliaferro Allen | Virginia | The Arrest of Caries. |
| Benson Boggs Bushfield | West Virginia | Dental Caries. |
| Peter Abraham Dantzler | South Carolina | Dental Prosthesis. |
| Tilghman Howard Ferguson | California | The Teeth and their Treatment. |
| James Lawrence Fogg | Georgia | Development of the Teeth. |
| Finis Ewing Gaston | Mississippi | Insertion of an Artificial Denture. |
| James Frank Griffith | North Carolina | Use of Anæsthetic Agents for Extraction of Teeth. |
| George Arthur Hildebrand | North Carolina | Formation of the Teeth. |
| Bethel McMullen | Florida | Odontalgia. |
| Henry Clay Moseley | Texas | Alveolar Abscess. |
| Hugh Thompson Murray | District Columbia | Sensitive Dentine. |
| Bernard Myer | Maryland | Tic-douloureux. |
| James Henry Nash | Mississippi | Impression Materials. |
| Walter Robert Snead | North Carolina | Nitrous Oxide Gas. |
| William Roscoe Turk | Virginia | Digestion. |
| Charles Neville Wallach | District Columbia | Materials Used for Filling Teeth. |
| George Greenhow Wayt, M.D. | Virginia | Causes and Treatment of Caries. |

## PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The sixteenth annual commencement of the Pennsylvania College of Dental Surgery was held at the Musical Fund Hall, Philadelphia, Friday evening, March 1st, 1872.

The valedictory address was delivered by Prof. James Tyson, M.D.

The number of matriculates for the session was sixty-three.

The degree of D.D.S. was conferred upon the following members of the graduating class by Dr. W. W. Fouche :

| NAME. | RESIDENCE. | THESIS. |
|---|---|---|
| George W. Barnes | Pennsylvania | Treatment and Filling of Pulp Cavities |
| Francis L. Beecher | Minnesota | Extracting Teeth. |
| Truman W. Brophy | Illinois | Diseases of Alveolar Processes and their Treatment. |
| Jos. Rutledge Clements | Wisconsin | Salivary Calculus. |
| Reuben Compton | New York | Alveolar Abscess. |
| Hippolytus E. Daudinot | Cuba | Facial Neuralgia. |
| Wm. Boudrias De Morat | New York | Human Teeth. |
| A. Jameson Fuches, Jr. | Missouri | Diseases of the Teeth and Associated Parts. |
| Alfred H. Henderson | New Brunswick | Caries of Human Teeth. |
| John H. Holliday | Georgia | Diseases of the Teeth. |
| William M. Huston | North Carolina | Salivary Calculus. |
| Edwin C. Jones | South Carolina | Cups and Materials for Impressions of the Mouth. |
| George H. Lathan | New York | Filling Teeth. |
| Louis W. Lyon | Minnesota | Operative Dentistry. |
| Robert E. McReynolds | Georgia | Dental Prosthesis. |
| Juan J. Madriz | Central America | Mechanical Dentistry. |
| John A. Mayer | Pennsylvania | Practice of Dentistry and its Effects. |
| John S. Moffit | Ohio | Tartar and its Treatment. |
| Andrew Patterson, Jr. | Ohio | Alveolar Abscess. |
| Daniel W. Plotner | Ohio | Digestion. |
| George A. Richards | Ohio | Dental Caries. |
| J. Logan Saxton | Pennsylvania | General Anæsthetics. |
| Asahel W. Smith | Kentucky | Inflammation. |
| Charles W. Stainton | New York | Anæsthetics. |
| Edw. C. Thatcher, M.D. | Pennsylvania | Tetanus. |
| William Winterbottom | Pennsylvania | Salivary Calculus. |
| *Theodore F. Chupein | South Carolina | Salivary Calculus. |

HONORARY DEGREES.

James W. White. Charles Hamilton.

* Having been in practice since 1852, and complied with 2d Article on "Qualifications for Graduation."

* * *

## PHILADELPHIA DENTAL COLLEGE.

The ninth annual commencement of the Philadelphia Dental College was held at the Academy of Music, Thursday, February 29th, 1872, at three o'clock P.M

The address to the graduates was delivered by Prof. T. C. Stellwagen, M.D., D.D.S.; valedictory by J. D. Thomas, D.D.S.

The number of matriculates for the session was sixty-six.

The degree of D.D.S. was conferred upon the following members of the graduating class by Rev. Richard Newton, D.D.:

| NAME. | RESIDENCE. | THESIS. |
|---|---|---|
| C. A. Baird | Ohio | The Maxillary Bones. |
| Henry H. Black. | Nova Scotia | The Teeth. |
| Wesley J. Chandler | Ohio | Dental Prosthesis as Affecting Speech. |
| Alexander J. Dallas, Jr. | New York | Digestion. |
| Frederick Dally | England | Periodontitis, or Inflammation of the Alveolo-Dental Periosteum. |
| William McL. Dancy | Florida | Sulphuric Acid and its Therapeutic Use. |
| James H. Falks | South Carolina | Importance of Natural Teeth. |
| Joseph Finkelstein. | Austria | Alveolar Periostitis. |
| Samuel Gerstel | Prussia | Extraction of the Teeth. |
| John A. Heller | Wisconsin | Disease of the Teeth. |
| Walter M. Hindman | Ohio. | Dental Education. |
| Elijah Huntington | Vermont | Necrosis. |
| Frederic L Ill | New Jersey | Caries of the Teeth. |
| Edwin H. Knott | France | Nitrous Oxide as an Anæsthetic. |
| William S. Logan | Louisiana | Sulphuric Acid. |
| Henry C. Massie | Missouri | Prevention and Treatment of Decay on the Proximate Surfaces of Teeth. |
| William D. Myers | Washington, D. C. | The Development and the Structure of the Teeth. |
| Charles D. Newell | Vermont | Dental Anæsthetics. |
| Robert N. Nicholls, M.D | Louisiana | Malaria. |
| Hermann Nicolai | Germany | Fractures of the Jaws. |
| Llewellyn G. Noel, M.D. | Kentucky | Capping Pulps. |
| Richard Peardon, Jr. | Wisconsin | The Teeth. |
| Mateo A. Quintero | Cuba | Odontalgia. |
| Gabriel Ravel | France | Pivoting Teeth. |
| Ig. Ribadeneira, M.D | South America | Staphyloraphy. |
| Theodore S Riggs | Louisiana | Aurum. |
| William Sachs, Jr | Prussia | Alveolar Abscess. |
| Cyrus See | New York | Plaster Impressions. |
| James Spencer, Jr | New York | Alveolar Abscess. |
| Joseph Hare Taylor | Maryland | Dental Science. |
| John D Thomas | Pennsylvania | Nitrous Oxide. |
| Alton H. Thompson | Kansas | American Teeth and American Degeneracy. |

## NEW YORK COLLEGE OF DENTISTRY.

THE sixth annual commencement of the New York College of Dentistry was held in Steinway Hall, on Monday evening, March 4th, 1872. The address to the graduates was delivered by Prof. Frank Abbott, M.D. The valedictory address on the part of the class was delivered by J. L. Davenport, D.D.S. An address was also delivered by Hon. John H. Anthon. Prof. F. Le Roy Satterlee, M.D., presented the faculty prize of a case of dental instruments, valued at one hundred dollars, to Wilbur F. Kelsey, D.D.S., of Connecticut, for having passed the best examination in each of the departments.

The number of matriculates for the session was thirty-three.

The degree of D.D.S. was conferred upon the following graduates by the President, Dr. Stephen A. Main: Jason L. Davenport, of Massachusetts; Samuel Wait, of New York; Wm. E. Preston, of England; Wm. E. Hoag, of New York; Chas. C. Allen, of Georgia; Wm. F. Kelsey, of Connecticut; Richardo Farres, of Cuba; Frank S. Emerson, of New York; Juan B. Parratti, U. S. of Columbia; Frank Moos, of Germany; Frank Garcia, of Cuba.

## BOSTON DENTAL COLLEGE.

THE fourth annual commencement of the Boston Dental College was held at the College building, Tuesday, March 5th, 1872. Dissertations were read by Frederic Fox Gage, James Birney Wells, and Eugene Velory McLeod. An address was delivered by Prof. John P. Ordway, M.D., and the valedictory by Thomas William Clements.

The degree of D.D.S. was conferred on the following members of the graduating class by Prof. D. S. Dickerman, D.D.S., M.D., President:

| NAME. | RESIDENCE. | THESIS. |
|---|---|---|
| Thomas William Clements | Pembroke, Me | Fifth Pair of Nerves. |
| James Birney Wells | Ipswich, Mass | Teeth Fibrous. |
| Benjamin Pevere Merrill | Plymouth, N. H | Caries of the Teeth. |
| Levi Parker | Boston, Mass | Digestion. |
| Eugene Velory McLeod | New Bedford, Mass. | Nitrous Oxide. |
| Charles Herbert Smith | Wareham, Mass | Formation of the Teeth. |
| William Russell Channing | New Bedford, Mass. | Circulation. |
| Frederic Fox Gage | Boston, Mass | Dental Art and Mechanism. |

## DENTAL ALUMNI ASSOCIATION OF HARVARD UNIVERSITY.

THE first annual meeting of the Dental Alumni Association was held at the Revere House, on the evening of commencement day, February 14th, and after the usual business they adjourned to a bountiful repast, where interesting remarks were made by members of the faculty, and the earlier and graduating classes.

The election of officers then took place, with the following result:

*President.*—Dr. J. T. Codman, of Boston.

*Vice-President.*—Dr. T. Fillebrown, of Lewiston, Me.

*Recording Secretary.*—Dr. A. B. Jewell, of Boston.

*Treasurer.*—Dr. T. O. Loveland, of Boston.

These form an Executive Committee. A. B. JEWELL, *Secretary.*

# CLINICAL REPORTS.

## UNIVERSITY OF PENNSYLVANIA.

### SERVICE OF JAMES E. GARRETSON, M.D.

REPORTED BY DE FOREST WILLARD, M.D.

### CARIES OF INFERIOR MAXILLA.

WE have here a girl, nine years of age, who comes to us with a difficulty about her mouth.

*Imprimis*, we remark that she is pale, anæmic, and sallow-looking; certainly not bearing the evidence of robust health. Such general condition of your patients should always be perceived at first glance, and is all-important; for you can often judge better as to any variation from the normal standard at this time, than you can after the countenance has become familiar. Noting this, then, we open her mouth and immediately perceive that the gum of the lower jaw is riddled with sinuses, from which, and from around the teeth, pus is freely oozing. The gum is, moreover, soft, spongy, darkly congested, and angry-looking, and as I press upon the front teeth you see not only that they are loose in their pits, but also that the whole alveolar process, as far back as the bicuspids of either side, is soft and yielding; in fact, one can hardly realize how the teeth remain thus perfectly in position, with so little apparent support.

I pass a probe into each of these sinuses, and immediately find bone that is soft, riddled, easily broken down, honeycombed. It has not the hard, rough, resisting feel of necrosed bone, nor is it soft, smooth, and springy as it should be in the normal condition. Our diagnosis is therefore assured, and we know that she is suffering from an affection which is analogous to ulceration in the soft parts,—*caries*, a disease which is quite rare in this particular bone, being more frequently found in the superior maxillary.

As to the cause of the disease in this present case, I am unable to inform you, the history being unsatisfactory; yet I judge that the fault is constitutional, aroused to definite action perhaps by a local periodontitis, or perhaps an injury directly applied. It quite frequently follows the exanthemata.

An alveolar abscess is undoubtedly the cause of many of these cases, but here we find no teeth or fangs which give evidence of a primary disease; and it is probable that the trouble commenced as an ostitis, gradually passing on, unrestrained, until a large portion of the alveolar process has been destroyed. The great amount of ulitis would also indicate this, since it is not usually limited in periodontitis.

It is not every ostitis that runs on to destruction of the bone; in fact, it ought never to do so if proper care and treatment have been used, save in a few cases where the strumous taint is most markedly developed. The bones of scrofulous subjects are certainly very prone to this and kindred diseases, since they are already soft and spongy, seeming to possess a peculiar affinity for such maladies.

A periostitis is usually accompanied by ostitis, and although the pain may be severe, yet it is not always so.

The process of caries in a bone is precisely akin to chronic inflammation and ulceration of the soft parts, modified only by the insolubility and density of the bone structure,—it is in fact a chronic inflammation of the connective tissue of the bone, with consumption of the latter.

The process by which such changes are produced is not by an alteration in the bone corpuscles, for they are often seen under the microscope half destroyed, at the edge of a slice of bone from a carious spot; but probably from their contained cells, which aid in the formation of the cell-brood either by subdivision or by death. The gradual solution of the bone is a process which is as yet unsettled, but it may occur from the gradual breaking up and crumbling into fine particles, due to the cutting off of nutrition, or by the process which is called by either Howship or Volkmann (I do not recall which of them) lacunar corrosion. Such an act would necessarily end in suppuration to a greater or less degree.

Caries may be found alone or in combination with necrosis; but in all cases an ostitis is the primary step, and this may be provoked, as I have said, from trivial causes, where there is a tendency to the disease, as seen in scrofulous, syphilitic, or mercurial-tainted persons,—in which cases the death seems to be but a simple mechanical disintegration of particles of bone which appear to have lost all power of cohesion.

Sometimes the change seems to be a semi-fatty degeneration, while in others its close alliance to tuberculous transformation has inclined to the belief that tubercle is generally at least an associated condition. True tubercles are found in bones, but not in the periosteum of the long ones, yet caries often exists where there is no suspicion of any such presence.

Caries in the maxillary bones usually commences precisely like a case of periodontitis, and if treated on a rigid antiphlogistic plan, need seldom proceed beyond that point. If this is neglected, however, and a chronic stage reached, then the resistive power of the bone seems to have been overcome, and it yields an easy prey to the over-straining process necessary perhaps to the devitalization of a tooth, when simple extraction of the offending agent might have been immediately remediable.

The case before us is one which has progressed more rapidly than usual; for, about the jaw, caries is apt to assume the atonic rather than the fungous form.

In this case there is also an evident attempt of nature to throw out new bone. This osteoplastic surgery of nature is a most interesting subject. I have not the time to enter upon a discussion as to whether osteophytes are purely a product of the periosteum, or whether they are produced from the minute vessels which enter and escape from the bone, or whether this new formation, advancing from the Haversian canals, spreads itself out beneath the periosteum which only acts a secondary part, or whether both are true. This belongs to the pathologist to determine, but I am inclined to the opinion that osteophytes are the result of an inflammation of both periosteum and the surface of the bone. At any rate, this young neoplasia, as it develops, pushes its way into the defects made by the old destruction, and thus gradual reparation occurs.

The diagnosis of caries is usually easy when it is extensive, the pus-discharging sinuses and appearance of the surrounding parts, together with the easy interstitial admission of a probe, being sufficient guides. In cases of fungous caries, the probe may have to be carried through a mass of granulations covering in the bone before the softened structure is reached, while in atonic forms the feeling imparted may be somewhat that of necrosis. In general we may say that a bone is carious when a sharp instrument may be easily thrust into its substance.

In caries of the maxillæ it is impossible to determine at what point the destructive action will cease, nature seeming to be unable to form a distinct line of demarkation; and you will frequently commence to perform an apparently simple operation, when it will end perhaps in the removal of an almost entire bone.

In this little girl's case I think that the alveolar process is alone affected, and the only hope of cure lies in its removal. Had we seen the case earlier, we might have combated the primary local symptoms by scarification or leeching of the gums, together with cathartics, diaphoretics, etc.; but as I judge this case to be one in which the constitution is chiefly at fault, we should have been very careful not to pursue depletion to any great extent, but should rather have built up the system with iron, wine, milk, quinine, etc.; and in fact this is the very course which we shall now pursue in addition to our operative procedures. We shall not wait here to try the effect of stimulating injections, for the patient's health is suffering, and it is desirable to remove the dead bone as soon as possible. In some cases injections of tinct. iodin. one-half strength, or tinct. capsic. comp., or phénol sodique, or acid. sulph. aromat., or acid. carbol. properly diluted may be of great service in promoting a cure, but in the majority of cases an operation will be demanded sooner or later.

I shall cut down upon the bone against the roots of the teeth and as you now see I lift away with a gouge large masses of crumbling carious bone. It is easily disintegrated, and I continue scraping this material away until healthy bone is reached. How will I know when I do reach it? Healthy bone is white and vascular to the sight,—hard and springy to the instrument; carious, is dark and non-vascular, or deadish-white and oleaginous to view, and soft and brittle under the chisel. The difference is so marked that an operator could scarcely fail to recognize it. I have now taken away all, and can discover only sound bone on all sides. But what is left? Nothing but a delicate, thin portion of the internal bony plate of the alveolar process from the bicuspids on either side, while the fangs of the teeth are all exposed. Now, you will ask what is to be done with these teeth, for they do not look as though they would be able to survive, much less render any further assistance to the girl. I shall allow them to remain in position, for the power of repair is very great, and I am willing to try the experiment of saving them. They can be bent into any position, as you see, and will probably fall down bodily with the gum; yet it is possible that the tissue of the gum, together with the slight layer of bone, may be sufficient to keep them up in place until repair shall have set in. Of course we shall be very careful to allow no pressure to be made upon them, and all diet must be taken in a liquid form for several weeks. In process of time a new formation, either cartilaginous or semi-bonelike, may render them very valuable. We can do no harm in trying, at any rate.

[The parts were thoroughly washed and syringed with cold water every day, to which was added a few drops of tinct. iodin.,—no other dressing being used. Weeks afterward the teeth retained their upright condition, the tissues seemed to be closing around their fangs, and there was every indication that they would be held in a useful position; in fact, this result seems now attained, the teeth being solid, and the parts apparently permanently well.—De F. W.]

## CLINICS UNDER THE AUSPICES OF THE ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

At the last meeting of the Odontographic Society, it was resolved to hold clinics on the first and third Wednesday of each month. A committee, consisting of Drs. J. H. McQuillen, Louis Jack, and T. C. Stellwagen, was appointed to conduct them.

The first of these clinics was held Wednesday, March 13th, at the Philadelphia Dental College, 108 North Tenth Street. Dr. McQuillen filled a right inferior second molar, the cavity extending over the articulating and mesial surfaces; using Kearsing's block gold.

Alonzo Boice, *Reporter*.

# EDITORIAL.

## THE RELATION BETWEEN THE DEVELOPMENT OF THE MOUTH AND TEETH TO SYSTEMIC AND MENTAL DEVELOPMENT.

An exceedingly interesting and valuable paper, presented before the Odontological Society of Great Britain by Dr. Langdon Down, is published in the Transactions of that society, with the discussion which followed.

Dr. Down having become convinced, in his study of the mental affections of childhood and youth, that the accompanying physical deviations were as interesting and important as the psychical, especially in cases having a congenital origin or proclivity, made a careful investigation into the bodily condition of nearly a thousand feeble-minded youth, directing especial attention to the conditions of the mouth and teeth, with the view of determining if there were any visible signs of mental disturbance. The conclusion to which he arrived was that, in the great majority of instances, he was able to indicate the period at which the depressed condition commenced, from a pronounced deviation from a normal condition of the mouth and its appendages, where the mental weakness was congenital, especially where it originated at an early period of embryonic life.

Dr. Down calls attention to the following conditions of the mouth associated with mental defect: a marked postponement in the evolution of the deciduous teeth; irregular development of them as to sequence; inferior structure and stunted growth; more or less postponement in the evolution of the permanent teeth, and irregularity in the sequence of their development; a crowded condition and other abnormities of arrangement, such as an undue prominence of the canines or incisors; a want of continuity of the enamel, and defective structure leading to premature decay; an unusual thickness of the lips, especially of the lower; marked striations and transverse fissures; deficiency of muscular power, and prehensile function; extreme liability of the mucous membrane to inflammation and ulceration; inordinate length and size of the tongue; absence of muscular tonicity; corrugations of its surface and hypertrophy of the papillæ; a markedly diminished width between the posterior bicuspids; an inordinate vaulting of the palate,—not relative to the diminished width, but absolute (the exceptions to this were some few cases of macrocephalic idiots, who had inordinately large crania, depending on hypertrophy of the brain or chronic hydrocephalus,—in which cases the palates were widely in excess of the normal width); a frequent deficiency in the posterior part of the hard palate, so that the soft palate hangs down abnormally.

Mr. Oakley Coles confirmed to a great extent the observations of Dr. Down.

Mr. Turner had observed that the teeth of imbeciles were unusually large.

Mr. Keeling had noticed a gradual but very marked deterioration of the palates and teeth in one family from a grandfather to an imbecile child.

Mr. Sercombe recalled the condition of one of the oldest families in the realm, in whom every branch of the family had remarkably high V-shaped palates, and at least two members of the family had been in confinement.

Dr. Down, in reply to a question of Mr. Tomes, as to how the peculiarities of the palate noted by him were observable at birth, said that the V-shaped mouth was met with at the first period of dentition in congenital diseases, and added a confirmation of Mr. Sercombe's observation as to gradual deterioration shown by the aristocratic mouth and the dying out of the race.

The views expressed by Dr. Down, so far as they related to the narrow arch and vaulted palate as associated with mental defect of congenital origin, are in exact accordance with opinions which the writer had long entertained and frequently expressed—opinions originating, probably, from observations of the mouths of a family most of whose members were considered as lacking in mental power; one of whom—the most markedly deficient—presenting in extreme the peculiar mouth under consideration, which characterized to a greater or less extent the entire family.

To investigate the facts, more especially in reference to the other deviations from normal conditions, we recently sought and obtained, from the gentlemanly superintendent (Dr. J. N. Kerlin) of the "Pennsylvania Training School for Feeble-minded Children," an invitation to spend a day at that institution. In company with an esteemed dental friend, who took a deep interest in the problems presented, but who had formed the opinion that the characteristic mouth of idiots was abnormally flat and broad, we devoted the day to an examination of the dental and other peculiarities of the inmates, numbering about one hundred and eighty.

The first three cases which presented were, by a singular coincidence, so strongly confirmative of Dr. Down's position in reference to the narrow and deep arch, that there was corresponding assurance on the part of one of the examiners and distrust on the part of the other, as to the correctness of previously-formed opinions. The next case was the exact reverse, a broad, flat mouth; the evidence being strongly in favor of the congenital origin of the mental defect, which was decidedly pronounced. To these succeeded a series of cases which were absolutely free from any noteworthy peculiarity of the oral cavity. Among the balance we found three more marked cases of narrow and vaulting arches; but many where the deviation, if any, from normal condition was in the direction of breadth and flatness rather than the reverse. There were two cases of V-shaped upper maxillary; two of disproportionate size of lower jaw; several of *unusually* broad and flat arches; one case of hanging and one of cleft palate; and several cases of incomplete dentition,—a missing lateral or canine. We could not determine any special deviation as to time or sequence in dentition, and were forced to the conclusion that, considering the inattention to their teeth, as to everything else connected with the care of their persons, the teeth stood the test of neglect remarkably well.

In the mouths of some of the inmates—especially those whose mental development was little above zero—there were teeth which, for size, regularity, density, and perfection of form, would answer as models. There were also teeth which were faulty in every respect and relation; but, on the whole, we had to admit they were about an average lot,—neither better nor worse than those of the same number of similarly-neglected people of ordinary intelligence.

There is one fact apparent to the most superficial observer,—the rapidity with which these poor creatures grow physiologically old. The evidences of senility are noticeable in every organ and function: in premature baldness and gray hair; in dullness of hearing and dimness of vision; in the wrinkled skin; the tottering step; the wasted limbs; the receding gums, and absorbed alveolus. So that, in several cases, the man of thirty, by the record, seemed to be on the other side of sixty. Even in these cases, the teeth which were ready to drop from their sockets were not unfrequently sound in their structure.

Subsequent examination of the mouths of a number, believed to be congenital idiots, has resulted in finding three more cases of the high and narrow palatal arch; but these were counterbalanced by other cases, where the development was exactly the opposite, and by others where there was no discoverable abnormity; while several marked instances of the mouth described by Dr. Down have been found associated with intelligence of a decided character; one instance, in particular, of excessive height and extreme narrowness,—more marked than any we found among the feeble-minded,—in the case of a very intelligent and successful professional man.

Notwithstanding these apparent contradictions, it seems reasonable that there is a correlation between physical and mental organizations; and the deductions of one who has had such ample opportunities and so extensive an experience as Dr. Down are not to be set aside by the observations of a day, even if no solution of the problem presented; but it is presumable that the class of imbeciles which came under Dr. Down's inspection differs, as a rule, from the majority of those who are to be found here, in such an institution as the one mentioned.

We suggest as a reasonable explanation, the probability that the cases of which our opportunities allowed an examination were chiefly the result of accidental, individual causes, occurring during gestation, or inhering only in the immediate progenitor—perhaps in an exceptional condition at the time of impregnation or conception, such as the perversion of function produced by inebriation or other perturbating influences; while Dr. Down's cases were probably examples of continuous enervating and degenerating influences of intermarriage and other depressing causes connected with the life of the aristocracy. These causes being cumulative through successive generations, would doubtless produce a different style of abnormity from that which is the result of individual and accidental causes. That a law of correlation between progressive, mental, and physical development or deterioration exists, there can be no doubt, nor that it can be traced, if we "observingly distill it out;" but problems like these are not definitively settled except by the concurrent testimony of various observers.

# PERISCOPE.

## SELECTIONS AND ABSTRACTS FROM DENTAL AND MEDICAL JOURNALS.

LEARN TO LABOR AND TO WAIT.—There are *two* things that always pay—working and waiting. Either is useless without the other. Both united are invincible and inevitably triumphant. He who waits without working is simply a man yielding to sloth and despair. He who works without waiting is fitful in his strivings, and misses results by impatience. He who works steadily and waits patiently may have a long journey before him, but at its close he will find his reward.

THE PHYSICIAN'S OFFICE.—The following is an extract from Professor McGraw's address to the last graduating class, at the Detroit Medical College: "I have been in doctors' offices where a skull grinned from one corner, ghastly anatomical plates hung from the walls, and splints, suggestive of broken bones, were placed conspicuously in every corner. What a delightful resting-place for a sick woman,—visions of death, disease, and injury greeting her on every side! Now, gentlemen, make your offices pictures of comfort and cheerfulness. Banish from them every sign of your professional occupation, so that your patients may enter them not only without disgust, but with actual elevation of heart. I think I need hardly say that your apartments should be scrupulously clean, although I can recollect too many rooms, occupied by physicians, whose windows were festooned with cobwebs and dried flies, and whose floors were stained with tobacco spit. I have been pleased sometimes to hear the occupants of such offices groan about the lack of custom, for if it is the duty of a physician to preach the virtue of cleanliness, he should himself be a living example of his own doctrine. Filthiness in a physician is like dishonesty in a merchant, the very worst of sins."—*Boston Jour. of Chemistry.*

METHOD OF FILLING DISTAL CAVITIES IN INFERIOR BICUSPIDS WITH GOLD.—The introduction of reliable adhesive gold fillings in cavities situated on the distal surfaces of inferior bicuspids requires very great care. A description of a method of filling such cavities may not be without interest to some.

We will suppose the cavity is one in which the pulp is healthy and can be safely capped; also that the patient is steady and able to bear some fatigue; otherwise it is useless to attempt a gold filling, as it will certainly fail to preserve the tooth.

The instruments used are, for removing enamel, straight chisels and gouges, and also hatchets and gouges bent almost at right angles; for excavating decay, hatchets of various angles and sizes, and spoon-shaped hoes bent different ways, which are most convenient and cut rapidly. The pluggers are what are known as Dr. R. W. Varney's set, which contains thirteen points, and we have them made to fit automatic pluggers. When mentioning plugging instruments, the numbers will refer to those of this set. The hand pluggers are of various sizes, bent at different angles, and are very finely serrated.

In preparing the gold, make ropes, some containing half a leaf and some one leaf of No. 4 foil. This can be done very expeditiously by rolling in a napkin; ribbons also will be found very useful when building out the proximate surface; all should be cut into short pieces. It is quite impossible to weld ropes containing much gold unless by using a heavier blow than is proper to apply to a tooth. The "mats" introduced by the same dentist whose pluggers we referred to are very convenient. If crystal gold is used, No. 2 will be found most suitable, and the pieces torn off must be small. Every piece of gold should be passed through the flame of a spirit-lamp before introducing it into the cavity, or the pieces annealed on a sheet of mica.

Always have a wide separation between the teeth involved in the operation, in order to have abundance of room for excavating the decay and introducing and smoothing the plug; this is absolutely necessary, and on no account should filling be commenced till an abundant space is secured. If the file is used for this purpose, make the separation perpendicular, not V-shaped; if rubber, a section from a piece of ordinary white tubing, which is less elastic and consequently does not cause so much pain as the black rubber. A great diversity of opinion exists as to the propriety of leaving a permanent separation after treating decay on proximate surfaces. When a permanent space is left food is more easily removed from the surface of the plug, and the state of the filling subsequently can easily be seen, which is always satisfactory.

Before commencing to operate, place the patient in the most suitable position; if a "Morrison chair" is used, this is done by tilting the chair forwards and bringing the head-rest in the same direction. Stand a little behind and above the patient, and in this position you can most effectively do much of the excavating and the greater part of the plugging. At certain stages of the operation, however, you will find it advantageous to stand more in front; for instance, when cutting through the crown, packing some parts of the buccal wall with hand pressure, and in using the back-action automatic plugger.

Now cut down through the crown into the cavity, and remove all decay except a thin layer over the pulp cavity, if by removing it you must expose the lining membrane. Be very careful about this, as a layer of softened dentine to keep the capping from actual contact with the pulp is invaluable. Cut the sides with a slight dovetail to retain the plug, and for more security, if necessary, drill a hole in the mesial depression of the crown, and connect it with the cavity by deepening the natural fissure. Adjust the rubber dam at this stage, finish the excavating carefully, make sure that all frail enamel is removed, bevel the edges very slightly with a smooth file, touch the inside of the cavity with creasote, dry, and protect the pulp with a coating of collodion and oxychloride of zinc. As it is absolutely necessary to have the first few pieces of gold held perfectly steady for a starting-point, drill on the floor of the cavity at the lingual corner a small pit and at the buccal cut a notch. The cavity is now ready for the gold.

With a small-pointed hand plugger pick up a very short section of the rope, pack into the retaining-pit, and consolidate with No. 1 plugger. Add small pieces of the rope to this and build across to the notch, when you will find the gold perfectly firm and steady. Now go on adding gold, packing thoroughly every piece as it is introduced, keeping the metal out to contour of the tooth, and consolidating from time to time all gold projecting beyond the cavity with the back-action automatic plugger carrying a foot-point. No. 2 plugger will be found very useful; in fact two-thirds of the gold can be best packed with this instrument, but the gold in contact with the walls must from time to time be gone over with No. 1. When the cavity is filled level with the groove and anchorage in the crown, use narrow strips of No. 120 foil, sufficiently long to reach from the anchorage to the posterior border of the filling, and condense very carefully, thus obtaining the greatest strength of metal possible. When as much gold has been introduced as is desired, burnish thoroughly, applying the burnisher with the hand mallet.

File off all excess of gold, leaving the proximate surface of the plug slightly rounded, for thus, in event of the teeth afterwards coming in contact, the centre, and not the border of the filling will touch. Smooth with corundum tape and Arkansas stone, and finish with rotten-stone or some similar material. Never remove the rubber dam till the polishing is completed. It is highly important to have the plug well finished, for otherwise food accumulating on the rough surface will soon cause new decay.—*T. W. Hogue, Esq., in British Journal of Dental Science.*

Periosteal Inflammation.—Quiz was conducted by Dr. Geo. Watt.

Q. Is there any reason why inflammation in the socket of the tooth is more painful than in any other part?

A. By Dr. B. T. Spellman. The periosteum being the seat of inflammation, and being bound by the structure on both sides, it is more easily injured by impinging; and there being an unyielding boundary to the periosteum, makes it more sensitive.

Q. What are the ordinary phenomena of inflammation?

A. By Dr. J. Taft. In the ordinary soft tissues, heat, redness, swelling, and pain. The same thing is true of the periosteum to a certain extent; perhaps all the phenomena attending inflammation in soft tissues may exist in inflammation of the periosteum.

Q. Why is pain one of the phenomena of inflammation ordinarily?

A. By Dr. I. Williams. There is a pressure upon the nerves, owing to the increased flow of blood to the part; that is, pain results from the increased flow of blood, causing pressure upon the nervous fibres.

Q. Is it due to the increase of blood in the vessels?

A. By Dr. J. F. McGinnis. He should think it was, in a great measure, owing to the influx of blood to the parts.

Q. Swelling is one of the ordinary phenomena of inflammation; do you then suppose that the vessels of the periosteum enlarge when it is inflamed?

A. By Dr. Decamp. Yes, sir, I think they do; that is, thickened, if you call that swelling. I do not know what else it would be.

Q. What is the consequence of that swelling with regard to the teeth?

A. By a member. The consequence necessarily is pain, because as soon as the membrane commences to swell, or, being congested, undue pressure is created upon the nerves, the membrane being exceedingly vascular. I regard that as the reason why the membrane is more painful than inflammation at any other point. By extracting and removing the root of the tooth, the vessels have room to expand without undue pressure, and the pain will cease.

Q. Does the tooth change position and protrude from the socket when inflamed?

A. By Dr. Kelsey. Of course, while there is a thickened periosteum, the tooth stands partly out of the socket. It is not all imagination that the tooth is started up; it really is thrown slightly out of the socket.

Q. Is there any tissue, or any constituents of the blood, that becomes extravascular?

A. I suppose some may be thrown out in passing through the vessels.

Q. Suppose, from dental periostitis, suppuration takes place, what precedes suppuration?

A. By Dr. Clippenger. I would describe it as an inflammation or engorgement of the vessels until the circulation stops. When suppuration is found in the socket there is usually a sac formed.

Q. Will you give your opinion how that sac is formed?

A. It is of a fibrous nature, composed of fibrous tissues.

Q. Is that sac merely a distended portion of the periosteum, or is it formed of effused lymph matter that is thrown out?

A. By Dr. I. Williams. It is maintained by some that it is formed by the expanding of the periosteum. I think it is not an expansion of the periosteum, but mainly from the effusion of the lymph.

Q. If you have a case of acute alveolar abscess, not yet discharging through the gum, and not ready to make an artificial opening, tell us what would be your treatment?

A. By Dr. C. R. Butler. As I understand it, you mean a case of acute alveolar abscess, where pus is formed, but has no exit. I think the best way to master the trouble would be simply to make an incision, —tap it and get rid of the pus formed, as quickly as possible, so that the parts surrounding it would not be much involved.

Q. Suppose a patient comes to you with a tooth in such a condition that you suppose it may be saved and made valuable, but chronic alveolar abscess takes place, would you try to save the tooth, or extract it?

A. By a member. I would treat it so as to heal up the abscess in the shortest time possible, and would fill up the tooth with some substance that would exclude the moisture and gaseous matter, and fill the tooth. If it was an obstinate case, I would make an opening; but with ordinary cases it could be made through the opening of the tooth. In filling the roots, I think non-conducting substances better than metal.

Q. What would you regard as favorable or unfavorable symptoms, in reference to the treatment, in cases of this kind?

A. By Dr. L. Buffett. With patients of a scrofulous tendency we could not expect as good results. If the patient be healthy, with no such taint, we expect to save the teeth. Age, also, would have some effect. We expect better results with middle-aged or young persons than with older persons whose powers are weakened by age.

Q. Would you depend upon constitutional treatment in cases of periosteal irritation, or would your treatment be almost entirely local?

A. Many cases are local, to a great extent, and may be easily treated locally.

Q. Suppose you found a case of alveolar abscess resisting treatment, and continuing to discharge in spite of your treatment, are there any circumstances where you would let the tooth remain? if so, under what circumstances?

A. If I found the tooth resisting all treatment,—that is, both constitutional and local treatment—yet I cannot think of any such case ever coming under my observation,—I would feel obliged to remove the tooth, unless it produced no soreness or inconvenience to the patient.

Q. How are the pus globules formed, and where do they come from?

A. By Dr. J. Taft. I really want more light upon that subject. I know there are various views entertained. One is, that they are just like the white corpuscles of the blood, and are a multiplication of these. That is as far as I have known anybody to go on that hypothesis. That is not at all satisfactory; it does not tell us how that multiplication takes place. My impression is, however, that pus corpuscles are formed by the perverted use of the pabulum that is prepared to nourish the tissues in which the change takes place. By disease, the action is going on in that part, which perverts this from its original use, and it takes on this form.—*Quiz Exercise, Ohio State Dental Society, Dental Register.*

FILLING TEETH.— * * * Perhaps even the honest operator is called to mourn over failures more frequently in approximal cavities in biscupid teeth than in any other class. Perfect success in many of such cases is in some degree uncertain, yet the operation can be much simplified, and the chances of success much increased, by adopting the following plan, which we have found uniformly successful:

In case the decay occurs between the first and second inferior bicuspids, we use a common separating file, making a free opening to the bottom of the cavity, and continue filing until the approximal surface is clearly defined. Then use small enamel chisels, cutting down the crown immediately over the cavity, until you have an opening extending to the grinding surface, of about the same size as the cavity below. The excavation being thus made, the entire cavity becomes fully exposed to view. In shaping the cavity, care must be taken to have it properly dovetailed into the body of the tooth, so that the filling cannot be displaced. The filling of a tooth thus prepared becomes easy, as it requires only direct pressure in a line with the tooth. By this method at least two important objects are gained: first, greater certainty of good results; second, a saving of masticating surface, as it avoids those extensive V-shaped separations which are necessary in the usual process, also because the part cut away to gain access to the cavity, is replaced by the filling. The same process applies to approximal cavities in molar teeth, and with a greater prospect of success than by any other plan with which we are acquainted.

We may safely remark that many failures may be traced to a prejudice against, or timidity in, cutting away sufficient of the tooth substance that may be necessary to render a complicated filling a simple one; and then again others have learned the lesson *too well*, who continue to cut and carve, until they mutilate what they should preserve. Both classes are *extremists*, and I doubt not that success lies between the two.

In the preparation of the cavity, we here lay down a few axioms or theorems, being the result of fifteen or twenty years' practice, checkered ever as they are with various degrees of success and failure: first, never attempt to fill a tooth until every part of the cavity can be seen, either with or without the aid of a glass; second, always secure sufficient space, either by wedging, filing, chiseling, or extracting, so that you can have a free use of your instruments within the cavity; third, avoid filling under a thin and exposed portion of enamel, lest it crumble off and destroy your filling. Better cut it away at once rather than incur the risk of losing your filling and perhaps your reputation; fourth, attain a regular and firm margin to all cavities so that the union between the filling and tooth shall be complete; consequently no danger of leakage.

These are but simple rules, yet they cover much of the ground in which there are snares and pitfalls to entrap the unwary feet of the careless practitioner, and if honestly followed in the preparation of the cavity, much of the difficulty of filling is obviated, as we shall have by this time secured self-confidence, as well as the confidence of the patient, both of which are essential to success.

* * * We might here also add to the causes of failure, imperfect and ill-adapted instruments. Some dentists, either from penuriousness, ignorance, or old fogyism, are in this respect about as far behind this age of improvement as an ancient soldier would be with his matchlock or flint and steel gun; put some of the improved instruments into his hand, and he would be almost as much astonished at the ease and rapidity of the results attained as an Egyptian would be at the discharge of a mitrailleuse. As we pass from the preparation of the cavity to introducing the gold, the observation in reference to improved instruments is especially *apropos*, for, in this department, improvements have perhaps made the greatest strides, and one who is not up with the times and is ignorant of the advantages of such points as Atkinson's and Varney's, will very likely be found an incubus on the profession, crying down perhaps dental colleges, conventions, and all advancement generally.—*Dr. E. G. Wheeler, American Journal of Dental Science.*

THE ANTRUM OF HIGHMORE AND ITS DISEASES.—This cavity is liable to several diseases; the first which we will consider, is the result of inflammation from some cause, known or unknown,—a purulent discharge from a dead tooth, a blow upon the face, an extension of a severe catarrhal attack, may all produce inflammation at this point. It may exist for years and yet give the patient but little inconvenience; at last the accumulation of muco-purulent matter may be so great that pressure on the walls takes place and a slight protuberance is observed, and if exit is not given to the fluid, nature forces an opening through the bone and integument. At first there is a dull, heavy pain, the feeling being described as if everything was filled up and a heavy pressure was constantly kept up. When the inflammation is at its height, there are throbbing and lancinating pains. If there is not an escape of muco-purulent matter by way of the nose, an opening should be made through the floor of the antrum by extracting a bicuspid or molar tooth; and should that not lay it open, a drill should be used to finish the operation. Of course in the extraction of the tooth, its removal will depend on its condition; taking that one the loss of which will be least felt, or possibly its loss prove a gain. Should a dead tooth be the cause of the trouble, that one should certainly be removed.

In this disease it is frequently the case that the opening into the meatus is entirely closed; if such be the condition, the artificial opening should never be allowed to close till communication is perfectly established between the antrum and the nostrils. If the pressure be very great, the lachrymal duct may be obstructed and the fluids of the eye will flow down the cheek. The discharge oftentimes is very offensive. An entrance being made, the cavity should be thoroughly cleansed out when the discharge has ceased, by gently injecting warm soapsuds made with Castile soap, after which, use warm water in which a few drops of tinct. calendula have been dropped. This having been done, a weak solution of iodine or chloride of zinc should be thrown into the antrum. The lees of wine or port wine may also be used to advantage. This should be repeated every day, or every other day after a few weeks, till all discharge ceases, the purpose being to remove all inflammation and establish a healthy secretion. The antrum should be syringed out every time an application is made. If the general health is impaired, tonics must be prescribed; and should there be a scrofulous diathesis present, it would be well to use the course of treatment generally observed in such cases. There should be left in the opening a pledget of cotton to keep it open.

Abscess of the antrum is sometimes observed, though very rarely. If there be pus present, which must always be the contents of an abscess, we shall have the characteristic sign due to its presence, rigors and lancinating pains. Sometimes there will be fluctuation of the part. The same course must be pursued here, namely, to make an exit for the matter. Necrosis may take place in the case of an abscess. If this occur, the bone should never be removed till complete separation has taken place. If a swelling of the face exist after a removal of the disease, it may be reduced or entirely removed with a roller and bandage.

Some of the cases yield readily to treatment, especially recent ones, but many will be found to demand a long course of medication.—*Dr. Leon F. Harvey, in Dental Advertiser.*

On the First Insensibility from Ether.—When the vapor of sulphuric ether is inhaled, there is, as is well known, an early stage of complete muscular relaxation, in most cases soon succeeded by an excitement, which in turn gives way to the complete unconsciousness which is so desirable for protracted surgical procedures. It is not, however, so generally known that the muscular relaxation just mentioned is attended with entire anæsthesia. Advantage may be taken of this fact to perform many operations which, although intensely painful, occupy but a moment of time,—such, for example, as the opening of whitlows or other abscesses. In this way much time is saved to the surgeon, while the patient is spared not only the suffering of the knife, but the vomiting, headache, and tedious return to consciousness which are so apt to follow the protracted administration of ether.

Again, when it is decided to dispense with anæsthesia, it often happens that the incisions made are not free enough,—either because the patient resists, or the surgeon shrinks from giving pain; or it may be that the former cannot at first summon up his fortitude, and the operation is delayed until serious mischief has occurred, which might have been avoided by its earlier performance.

In large cities it is, of course, often easy to resort to the use of nitrous oxide, administered by those who make it a business; but in office practice, and in the country, the same end is gained by giving a small dose of ether. It is not even necessary to have an assistant, except in the case of children, or of very timid persons, who have not the force of will to follow out the directions given them. Generally the whole affair may be managed easily, as follows:

Let the patient lie on a sofa or reclining-chair, and take in his own hand a folded handkerchief or towel, with about f℥ss of ether poured over it. He should be instructed to breathe out strongly, and then to apply the inhaler at once, firmly, to his face, and to hold it there. He may be told also to raise up his other hand, and his attention repeatedly directed to keeping it up. As soon as the hands fall, the surgeon, having everything previously in perfect readiness, promptly accomplishes his object, and the patient is at once allowed to "come to."

Sometimes it is better for the surgeon himself, or an assistant, if one is to be had, to manage the towel or other inhaler, the patient being told to concentrate his attention upon holding up one or both hands.

To those who are already acquainted with this "dodge" and with its value in the opening of abscesses, the reduction of dislocations, the introduction of instruments into the bladder, etc., no apology can be necessary for this communication. I trust that some who have not hitherto known of the plan may be induced to try it, and may find it as useful as it has been to me.—*Dr. J. H. Packard, in Phil. Med. Times.*

A CASE OF SALIVARY CALCULI.—L. P., a retired medical gentleman, aged fifty-four; has been lately in good health, but formerly exhibited indications of strumous diathesis. Twenty years ago he suffered from symptoms of phthisis, and coughed up, during much bronchial irritation, several chalky concretions. Has passed, at varying intervals of a few years, without much discomfort, small single calculi from the left submaxillary duct. After three or four years' relief, on the 6th and 7th of July last he commenced to void many small calculi from the same situation, accompanied with painful mastication and uneasiness on the floor of the mouth.

July 8th.—Has had a bad night. At 10 A.M. he was found with both parotid, both submaxillary, and both sublingual glands much inflamed and enlarged; tonsils and uvula much increased in size, rendering deglutition very difficult, all food regurgitating into the posterior nares unless the nose was tightly held during attempts to swallow; tongue considerably enlarged, and covered with creamy fur; power of articulation almost lost; elevation at the termination of the left Whartonian duct prominent, and the duct itself distended by a small calculus, which was removed by Dr. Edwards (my senior partner), through the natural orifice, with a probe and pair of fine forceps, after which a quantity of saliva escaped and a little bead of pus. Opposite to the left lower first molar was a transparent vesication on the mucous membrane, over the sublingual gland, upon puncturing which a quantity of clear saliva-looking fluid escaped. Skin hot; pulse full and bounding, nearly 120; bowels confined; both cheeks puffy and much distended; breath very offensive, and saliva dribbling freely from the mouth. Ordered, two grains of calomel immediately; to inhale steam; brandy and milk diet; and twenty-five minims of chlorodyne at night.

9th.—Had a better night, and brought away two or three more calculi. A square block of white, smooth, firm lymph, as large as the crown of a molar tooth, had been secreted from the surface where the vesication had existed, and was now detached, as it produced discomfort. Duct freely discharging saliva. Pyrexia diminished.

10th.—Restless night. Duct blocked up again; a blunt probe was introduced, and this had the effect of removing a little plug of sanious lymph, which was followed by a quantity of offensive pus. No calculi since yesterday. Block of lymph on the surface removed as before.

11th.—Continual discharge of healthy-looking pus from affected duct. Papilla at its entrance hard, and as large as a No. 1 shot. Block of lymph again requiring removal. Swelling reduced.

13th.—Swallows better. Left submaxillary gland still enlarged and tender; other glands diminished to natural size. Free discharge of pus. Ordered nitric acid and liberal diet.

Went on improving until the 22d, when the largest calculus ulcerated its way through the duct, about half an inch from its mouth, and was easily removed with a pair of forceps.

From this time he progressed favorably. The fistulous opening caused by last calculus soon healed, and the discharge gradually ceased, though the floor of the mouth remained tender and irritable for three or four weeks.

The number of calculi passed during the fortnight was thirteen, varying in size from that of a good-sized pin's head to the largest, which is rather bigger than a full-sized grain of wheat, and was the only one that did not escape from the natural aperture of the gland-duct. They are of a pale-fawn color, roundish, slightly rough, and somewhat porous, and of very light specific gravity.—*London Lancet.*

Nasal Calculus.—The accompanying case is worthy of note from its extreme rarity, and from the fact of its producing loosening of the teeth on the opposite side to that on which the calculus was found. Nasal calculi generally, as in this case, form around some foreign body which has been accidentally introduced. This patient cannot remember anything having been inserted into his nostrils, so that probably it had been there for ten or more years, and its existence only became apparent when it led to a disagreeable discharge from the nostril, to bulging of the nasal process of the superior maxillary bone, and to loosening of the central and lateral incisors.

G. B., aged seventeen, a boy of strumous habit, and a parish apprentice to a tailor, came to the Dental Hospital in this town on the 2d of August, 1871. Mr. C. Sims, one of the dental surgeons of that institution, found the nose, especially on the right side, much swollen; and also much inflammation and tumefaction of the upper lip and gum. The central and lateral incisors were very loose. He had an offensive discharge from the nose, and was in much pain. He stated that the swelling came on suddenly two days previously, without any assignable cause. He had suffered six months before in a similar way, and was for a few days an out-patient at the Homœopathic Hospital, and then obtained relief by using fomentations to the nose. He had never had syphilis or any injury to the parts. Mr. Charles Sims, thinking it a case for consultation, brought the patient to me. It was decided as a tentative proceeding to extract the left upper central and lateral incisors, they being very loose. Mr. Sims removed them on the 5th of August; a copious discharge of very offensive pus followed the extraction. He was directed to syringe the mouth and nose with ozonized water.

The gum quickly assumed a healthy appearance, and the boy was much relieved. He attended as an out-patient at the Queen's Hospital; but not getting much better as to the nasal symptoms, on November 13th I made another examination of the patient, when an oval calculus, weighing twenty grains, was discovered by a probe, and removed with dressing forceps in two pieces from the right nostril. It was half an inch in length, and a quarter of an inch in breadth, and was composed of phosphate of lime and magnesia, concreted around a pebble the size of a large pea. The punctum lachrymale on that side was so closed that no tears could pass into the nostril. I therefore deemed it necessary to slit it up, and to pass an Anel's probe down the nasal duct.

On November 20th the nose was much less swollen; the discharge diminished, and the tears were passing naturally into the nose. The lachrymal probe was again used. No caries of bone has taken place. The nose is nearly of its proper proportions, and the boy is quite well.—*Dr J. F. West, Lancet.*

TREATMENT OF FACIAL AND DENTAL NEURALGIA.—This method consists in turning into the meatus auditorius from four to ten drops (according to the age and sensibility of the patient) of the following fluid; then to close the opening of the ear by means of a little cotton, and to cause the patient to hold the head inclined for some minutes to the side opposite to the seat of the pain, so that the liquid may remain in the bottom of the ear. This preparation is thus made:

℞.—Ext. Opii,
Ext. Belladonna,
Ext. Stramonii, āā parts j;
Aq. Pruni Virg., parts xij.
Solve et cola.

Although this preparation may be only extemporaneous, it may nevertheless be preserved, if care is taken to keep it cool, by pouring on its surface from two to four drops of sweet almond oil.

It is very rare, with the use of this liquid, that relief is not obtained in a few minutes, and the patient asleep in half an hour, whatever may have been the severity of the pains, and that without having been in the least danger. Absorption takes place almost as rapidly as from a denuded surface, and it is, therefore, unnecessary to blister the patient when we wish to use narcotics, since they act almost as rapidly by the auditory passage.

If it should happen that, at the end of eight or ten minutes, the pain does not yield to the remedy (which sometimes happens when the quantity used has been too small, or when we have to treat a neuralgia which has already required the use of narcotics in any way), it is necessary to use a second dose, at least equal to the first, but in the opposite case, in order to obtain, promptly, that relief which is only too frequently momentary, of facial neuralgias of long standing.—*American Practitioner.*

OSTEOLOGICAL NOTES.—I have amused myself at odd moments in looking over cabinets of bones, and have noted down a few observations on the variety of osseous forms, both in health and disease. I would have them read in the spirit with which they have been prepared; not asserting in their behalf much that is either new or striking, but, for all that, trusting that they may prove to be at least interesting.

I have thought best to group my observations under distinct headings, each of which will serve as a title for a separate essay. They are as follows:

I. The facial region. II. The senile skull. III. The base of the skull. IV. The long bones in health and disease.

I. *The Facial Region.*—In the fall of 1868 a young man presented himself at the Wills Ophthalmic Hospital suffering from the effects of a serious injury of the upper portion of the face. A premature explosion of a blast had destroyed the vision of both eyes, and had broken in the bones composing the interorbital space, thus exposing a large cavity, evidently in the position of the ethmoid bone, which was filled with granulations. The face was much discolored by grains of gunpowder. The point that most interested me at the time was the fact that the man could eat nothing of a solid character: indeed, he could not masticate at all. The entire upper jaw was freely movable upward in the face. The teeth, however, were firmly rooted, and none were absent. I had previously noticed that skulls which had lain for a long time in exposed localities exhibited oftentimes entire destruction of the interior structures of the face, while the interorbital space remained intact, and the form of the face was thus preserved. It would seem, therefore, that by destruction of this space the shape and function of the face are virtually destroyed, and, conversely, that no degree of mutilation consistent with preservation of the integrity of the interorbital area disturbs the facial contour.

The literature of osteology contains little with reference to the architectural value of this space. Ward, in his elaborate monograph, is content with remarking "that the thick bony arches [of the face] are well adapted for the resistance of mechanical violence, while its interior is constructed of fragile laminæ and slender processes, extremely irregular in form and disposition; the rationale of which scarcely requires explanation." Mr. Hilton, in his essay on "The Bones of the Head considered in Relation to the Functional and Anatomical Associations," confines himself to the brain-case, mentioning the face only as influenced in form by the growth of the sphenoid. Humphreys and Hyrtl are silent on the subject. In Holden's Osteology (p. 79) is found the best description of the bones between the orbits. The author speaks of the nasal processes of the superior maxillæ as supporting the nasal bones and contributing to form the inner margins of the orbits, and adds, with great justice (p. 109), that the immobility of the upper jaw depends upon its fixity by means of three buttresses,—the *nasal*, the *zygomatic*, and the *pterygoid*. The French authors, *vide* Malgaigne and Richet, follow this method essentially.

The face, as all will agree, is designed to afford protection to the eyes, nose, and teeth. Of these, the first mentioned demand nothing for their well-being beyond the cavities through which they are approached, and within which they are accommodated. Thus, the eyes and nose find in the orbits and nasal scrolls respectively everything essential to the performance of their functions as visual and olfactory organs. The *teeth* alone demand something beyond their sockets for the due enacting of their part. Muscles to move the lower jaw may take their origin some distance from that bone, and the force brought therewith through the lower jaw is expended throughout the entire facial region. Bearing this in mind, may we not consider that the facial region is a natural one, and that the great idea governing its construction is to protect the teeth and aid them in their work of mastication, and that the orbits and nasal chambers are of quite secondary value? The temporal fossæ and the malar bones are thus *functionally* facial, since they would not have existed but for the muscles (temporal and masseter) which arise from them.

In many animals the temporal fossæ are so extensive as to meet at the vertex; with such the orbits are not distinct from the temporal fossæ. With others, however, such as man himself, having a higher cerebral development, the muscles in question are unable to secure from the sides of the brain-case the purchase obtainable from the sagittal crest. To obviate this difficulty the temporal fossæ are deepened anteriorly, and the greater wings of the sphenoid bone and the orbital process of the malar bones are produced to secure by their union sufficient space for the origin of the temporal fibres. Thus the parts composing the outer walls of the orbits are seen to have "temporal" significance. The same principle may be applied to the zygomata, which in this sense can be said to have "masseteric" significance, since the masseteric muscles give them expression.

Each external angular process of the frontal bone lies in a line corresponding to the vertical axis of the malar bone and the angle of the lower jaw. Two of the articulations of the malar bone, viz., behind (with the zygomatic process of the temporal) and in front (with the malar process of the superior maxilla), are designed to resist a force operating from beneath; the remaining articulation, that with the frontal bone, is weaker, and has relations, as already seen, chiefly with the temporal muscle.

Turning to the anterior aspect of the facial region, we observe that the immobile upper jaw is forcibly struck from beneath, in every act of occlusion, by the mobile lower jaw along the line of the dental arch. To receive and distribute this force we have on either side two osseous pillars,—the root of the malar process for the molar teeth, and the ascending process for the canine tooth. These, however, are not of equal value, for "the bite" is not accomplished either at the same time or in the same manner. The lower jaw being composed of two curved levers uniting at a central symphysis, the side of each lever is seen to be stronger than its curved incisorial end. It is actually strongest at the position of the canine and first bicuspid tooth. It is at this point—the seat of prehension—that the main shock of "the bite" is received, and thence distributed along the axis of the canine tooth to the anterior border of the lachrymo-nasal groove (turbinated crest), which in turn transmits it to the outer and thickened border of the ascending process to the interorbital space, where it is broken up, the main portion continuing perhaps along the anterior wall of the frontal sinus to the vertex. A line drawn upward from the axis of the socket of the canine tooth will, if the dental arch be not altered by loss of teeth or malformation, lie over the ascending process at its orbital border. This line may be appropriately called the *canine pillar*. The *molar pillar*, judging from the force of occlusion of the jaws at its site, would at first sight appear to be stronger than the former. But in reality it is not so. A moment's consideration of the shape of the molar tooth with its three divergent fangs is conclusive to the effect that the force of "the bite" is here at once diffused, and has but a remote relation with the malar process, which, as has already been seen, entertains a relation almost exclusively with a force acting from beneath. Besides, the "grinders" do not require the same actual support as the "seizers." The incisor series is weak and unimportant. The teeth cut, as the name implies,—the lower teeth slipping behind the upper. The unpleasant sensation when these teeth are opposed edge to edge is due to the absence of support, save that which they receive from the insignificant intermaxillary arch.

Now, the space between the line of power on the side of the face and the lines of resistance on the front of it, being as it were one of comparative quiet, is selected for the position of the orifices of escape for important nervous and vascular trunks. May we not in this way explain the familiar fact that all these foramina—the supraorbital, the infraorbital, and the mental—are on the same vertical line?

By the light of the above facts, how meaningless become many of the terms employed in the description of the face! The central, weak, unimportant sinus of the superior maxilla is called the body. A recent slipshod writer gives the impression that the ascending process is hollow (!) The same processes are alluded to by Holden as though their chief use was to be found in supporting the "true" nasal bones. We have seen that this must be a small part of their work. The *true* nasal bones are the nasal scrolls, and the nasal bones, so called, are but opercular ossicles to the former, and in man these are rudimentary.

As practical points in this connection may be mentioned the effects of removal of the lower jaw upon the shape of the upper jaw. The force maintaining the curve of the dental arch being in such instances absent, the alveolar processes fall inward, notwithstanding the patency of the roof of the mouth. This is well exemplified in a case of gunshot wound to the lower part of the face, recorded by Ribes. (*Dict. des Sciences Nat.*, 1818, xxix. 425.)

In conclusion, it may be suggested that a review of the condition of those individuals upon whom amputation of the lower jaw has been performed would be interesting, as would also the results *in toto* of those cases where naso-pharyngeal polypus has been removed by depressing the face after cutting through the root of the nose.—*Dr. Harrison Allen, in Phil. Med. Times.*

Fatty Tumor in the Situation of Ranula.—H. T., aged eighty-six, of strong constitution, but with marked senile atrophy and arcus senilis, was admitted under the care of Dr. Waite for eczema rubrum of the leg, dependent upon venous obstruction of the cutaneous capillaries on the anterior aspect of the leg below the knee. The incisive teeth in lower jaw were intact, and situated just behind these was a movable, apparently pedunculated tumor, about the size of a walnut. The surface of the mucous membrane was smooth and uniform; it was becoming chafed and painful from friction against the sharp edges of the teeth. He had noticed the swelling for twenty-two years; but, according to his own account, it became somewhat diminished in size after clear fluid had squirted out of it. This statement led to the suspicion of ranula. Probably, however, the fluid did not escape from the ranula-like cyst, but from the temporarily obstructed follicles of the sublingual gland. He was afraid that the tumor was "a cancer." The sac being opened, and the tumor exposed, it was carefully dissected out.

Mr. Paget mentions having removed a fatty tumor simulating ranula, which appears to have resembled this in almost every particular. It may now be seen in the Middlesex Hospital Museum. Mr. Churchill's tumor was about a quarter of an inch longer than Mr. Paget's,—*i.e.* one inch and three-quarters in length. There is no such tumor in the Museum of the Royal College of Surgeons, and it is doubtful if there is another specimen in London. (For a full description of the microscopic character and pathological import of this tumor, *vide Medical Times and Gazette* for December 23d, 1871.)—*Medical Times and Gazette.*

FIBRO-CYSTIC TUMOR OF LOWER JAW.—Mr. Christopher Heath exhibited a fibro-cystic tumor which had been removed from the lower jaw of a male patient, aged twenty-two, under his care. The tumor had been growing for six months. It caused no annoyance to the patient beyond what arose from its size, and a constant discharge of fluid into the mouth, which, after its removal, was found to come from a cavity in the body of the tumor. Under the microscope the tumor presented all the appearances of glandular structure.—*Proceedings Pathological Soc. London, Lancet.*

DIVISION OF THE FRÆNUM LINGUÆ.—In division of the frænum linguæ, text-books direct us to use a blunt-pointed pair of scissors, to direct their points downward, to keep as close to the lower jaw as possible, and to avoid the lingual artery. In what might well be made a riskless performance, we are exhorted to provide a special instrument, and to observe a somewhat formidable array of precautions. Any one who has frequently relieved tongue-tied infants after the customary manner, must be aware of the necessity to apply sharp scissors; otherwise the mucous membrane from its elasticity resists complete division. Simple operations are not invariably performed with ease. An infant may render our manœuvres awkward, much to the dismay of the mother and the chagrin of the surgeon To obviate this difficulty, I can recommend the following practice: direct the infant's face towards the light, pass the left index-finger along the floor of the mouth (the lower jaw is kept open by being made its fulcrum), along the left side of the frænum linguæ until the latter is fairly put on stretch, so as to make palpable the necessary extent of incision; place the sharp-pointed blade of an ordinary pair of scissors horizontally across the right angle of the mouth, in a line with the apex of the engaged finger; push its point through the membrane on to the tip of the finger, bring the blunt blade hitherto outside the mouth into contact with its fellow, and withdraw them directly forwards, protected by the aforementioned finger, and this minor operation is completed.—*Med. Press.*

NECROSIS OF JAW.—Dr. Sayre presented several pieces of the jawbone removed by operation from a man who had come to his office four months ago with an enormous swelling of the right side of the face and neck. He was salivated at the time for what was supposed by another physician to be syphilitic disease of the cervical glands. On examination, however, a fracture of the lower jaw was discovered, which accident the patient referred to the extraction of a tooth some time before. There was extensive periostitis and necrosis. The patient was advised to stop medication, and give nature a chance to throw out enough new bone to warrant the removal of the old. The idea was to allow the necrosed bone to act as a splint until such time as the new bone was formed with sufficient solidity to preserve the contour of the face. Three weeks ago the operation for removal was performed by an incision inside the mouth and along the internal aspect of jaw. The angle, ramus, and several portions of the body of the bone were removed. The operation was performed at the clinic, and the patient had such good use of the jaw that he was able to eat his dinner the same day and bring his upper and lower teeth in natural approximation. Since that time the patient made a rapid recovery, and the swelling of the face, at the time he was presented to the society, was rapidly disappearing.—*Medical Record.*

FRACTURE OF THE ZYGOMA.—Fracture of the zygoma alone is of very rare occurrence, and the following case seems worthy of being recorded.

A. B., aged forty, a man of unhealthy, hydrocephalic aspect, applied at the hospital in January, 1872, with a severe bruise (the result of a blow with the fist) of the left side of the face, inability to open the jaw beyond a certain distance, and with what he described as a tooth sticking into his cheek. He said he could feel nothing on the left side of his cheek and gum, and that it was "all cold like." Examination evidently showed fracture of the zygoma, and most probably fracture of the zygomatic process of the temporal bone, with disarticulation of it from the malar, the dislocated end being forced down towards the cavity of the mouth, having apparently the buccinator and buccal mucous membrane only between its rough extremity and the finger.

An attempt was made at reduction by passing the finger into the buccal cavity, and pushing the end of the bone upward and inward; but the pain was excessive. Moreover, even when something like approximation was attained, directly the masseter was put into action, the fragment assumed its former position. The nervous symptoms seem to point to pressure and implication of the middle and lower division of the fifth and its inosculations. He appeared to be, moreover, unable to inflate the side of the cheek corresponding to the accident, there being apparently pressure upon the buccal nerve of the lower division of the fifth. There appeared very slight deformity.

On his next visit (January 5th) there was less pain, and he could open the jaw slightly, the other symptoms remaining much the same. —*The Lancet.*

INFLAMMATION OF THE BASE OF THE TONGUE.—The patient was a man, aged twenty-two, who, on the day before admission, suddenly became affected with what he called "sore throat" and a pricking sensation in the fauces. This became worse in the course of the day, and he passed a painful, restless night. The breathing, however, was not affected, and there was no cough. When admitted, he had much pain on both sides of the throat, and great difficulty and pain in swallowing. The tongue, which was coated, was very œdematous, and he had difficulty in opening the mouth wide. Nothing wrong was found on examining the fauces, excepting slight enlargement of the tonsils. The voice was not affected; the pulse 100, and feeble, and the hands and feet cold; the expression was anxious. It appeared that five months previously he had had a similar, though less severe, attack. Leeches were applied to the throat, and mineral acid, with chlorate of potash and bark, given, and he inhaled the steam of vinegar and water. On the day after admission, he was with difficulty purged by calomel and senna. For three or four days he was in great pain, not only about the throat, but also in the ears, which was much relieved by poultices, and the nights were very painful. No affection of the larynx came on; nor did the tongue swell to any great extent. Improvement came on about the ninth day, and seven days after admission he was "quite relieved;" he left the hospital well about fourteen days after admission.—*Med. Press.*

CEMENT TO RESIST SULPHURIC ACID.—Take caoutchouc; melt this by a gentle heat, add from six to eight per cent. of the weight of tallow, taking care to keep the mass well stirred; add dry slaked lime, so as to make the fluid mass the consistency of soft paste; and lastly, add twenty per cent. of red lead, whereby the mass, which otherwise remains soft, becomes hard and dry. This cement resists boiling sulphuric acid. A solution of caoutchouc, in twice its weight of raw linseed oil, aided by heating, and the addition thereto of an equal weight of pipe-clay, yields a plastic mass which also resists most acids.—*Boston Journal of Chemistry.*

TEETH OF THE STURGEON.—To those who are accustomed to consider our American sturgeon as a comparatively worthless fish (large numbers, indeed, when captured, being thrown away as of no value), it may be a matter of surprise to know that a small European species, the sterlet, is among the kinds of fish most highly esteemed in Russia. Efforts are now being made to introduce this species into Great Britain by transporting the ova, and about two hundred young fish have already been turned out on the estate of the Duke of Sutherland. A very interesting fact was observed during the development of these fish—namely, that immediately behind the lips of the sterlet, just escaped from the egg, were found eighteen pretty, strong curved teeth, with which they fought each other quite ferociously.—*Harper's Magazine.*

## HINTS AND QUERIES.

WILL Dr. Kingsley be kind enough to explain in what manner the incisor teeth of the upper jaw were made to overlap those of the lower in the case described in the February number of the DENTAL COSMOS in "six days after the first *fixture* was applied," which he speaks of, but fails to describe? I can readily understand how the arch may be enlarged by means of wedges, as suggested by the doctor, when the lower teeth do not interfere, or where some provision is made to prevent their closing, but fail to see how the teeth in the case mentioned could be lifted beyond those of the lower while their continued occlusion had a tendency to force them in the contrary direction.—J.

How can I make a hard, flowing solder for use on plates (gold and silver) that will not roughen when soldering the teeth on?—H. S.

How much platina is required to make 18k. gold elastic enough for clasps? Is a high heat required to melt the platina so as to mix with the gold? Has platina the same effect on silver?—G. M.

WHAT is the best instrument for drilling roots intended for pivot teeth, so as to insure a round, straight hole?—D. S.

CAN the black be removed from Arkansas stone, used to sharpen instruments, without the use of acid?—C. S.

WHAT preparation is required to make silver deposit on steel?—E. P.

Is there anything better than alcohol for washing amalgam?—A. F.

WHAT is the best means of controlling the sickness or retching frequently following severe alveolar hemorrhages?—S. H.

I WOULD like to see a concise description of the characteristics of the tissues of the dental alveolus.—M. H. N.

WHAT is the best article with which to mend a broken plaster cast of a tooth or any nice cast of an impression?—C. T. J.

How can gutta-percha scraps be cleaned and worked into sheets again?—M. C. S.

WHAT kind of filling in nerve canals gives the best results? Will some one of experience please answer?—WESTERN.

IF the pulp of a deciduous tooth is destroyed, does it prevent or interfere with the normal absorption of the roots?—A.

BY what process is tartar precipitated upon the teeth?—C.

IN what way should we proceed to replace a natural tooth that had been removed by accident? Have they ever been replaced satisfactorily, unless the pulp was removed and canal properly filled?—K.

How shall I remove from the pulp canal the broken end of a broach?—S.

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REPLY TO "W."—In the February number of the DENTAL COSMOS "W." asks, "What shall we do with deciduous teeth in which the pulps are exposed?" They should be treated in somewhat the same manner as the permanent teeth A single application of the arsenical preparation in common use will so far destroy the vitality of the pulp in the crown that it can be removed on the day after it is made. The pulp cavity and crown should then be filled. Either Hill's stopping or osteoplastic may be used as a filling, but no attempts should be made to fill the roots. The parents of the child should be warned, however, that, eventually, periosteal inflammation may attack a tooth treated in this manner, and will probably result in alveolar abscess. After this takes place, no serious trouble will occur.—A. R.

REPLY TO "JOHN."—"What is the most satisfactory practice in making accessible for filling the small cavities on the approximal surfaces of the anterior teeth?" From a careful examination of the results of the different methods practiced by the best operators, it would appear that the most satisfactory practice of making accessible the proximal cavities of the incisors and cuspids is to slightly separate by pressure, and then open the cavities by freely cutting away from the lingual border, until easy access is secured. The effort in preparation and filling is then direct. The gold will with certainty be brought into contact with the labial wall, and the whole filling can be better consolidated. The finished surfaces will also be so widely apart in their inner portion as to secure cleanliness of the parts.—A.

REPLY TO "E."—In reply to your querist, who asks, "Are there any vascular and nervous connections of the dental pulp with the dentine?" I answer: There are nervous connections, although difficult to demonstrate. Let the person differing with me answer the following: Are there more than the following three ways for medicines to act—mechanically, chemically, and by absorption? If not, in which of the ways enumerated does arsenious acid act when applied to dentine? If by absorption, what tissue of the body absorbs in the case referred to? —M. C. S.

REPLY TO "K."—"When a tooth is in such a condition that an abscess is threatened and cannot be prevented, is it better to establish a fistula by mechanical means, or permit it as the result of a suppuration?" There can be no fistula until after suppuration; you can assist nature by "mechanical means" as soon as suppuration takes place, except where the abscess has a tendency to point on the outside; then it is better to puncture on the inside (or where you wish it to point) before suppuration, being certain you penetrate to the root of the tooth.—M. C. S.

REPLY TO "W."—Your querist "W." asks, "What shall we do with deciduous teeth in which the pulps are exposed?" When they are much loosened by absorption, extract them; otherwise destroy the pulp, and fill its place and the cavity of decay with Hill's stopping.—L. S.

Reply to "John."—In reply to your correspondent who asks, "What is the most satisfactory practice in making accessible for filling, small cavities on the approximal surfaces of the anterior teeth?" I reply: In getting space between front teeth, or any others, for filling, the operator will do well to use various ways and means, according to circumstances and his good judgment. Let us remember that all considerations relative to tooth filling, cannot be reduced to "a point."—J. S.

Reply to "A. G. C."—"What is the best treatment, after removing calcareous deposit from the teeth, for gums which have become diseased by its accumulation?" The removal from teeth of calculus that has caused disease of the gums is the only treatment necessary; and if, by the way, you are inclined to use acid for this purpose, always do it upon teeth that have been extracted. Then it becomes an interesting experiment.—D.

Reply to "A."—Querist "A." asks for the objection to filling the canals of treated teeth with cotton. The objection is, that it does not exclude secretions from the canal, and in time, itself becomes decomposed and a cause of offense. I know of no reason why tin should not be used in filling roots.—M.

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Guillois's Cement *vs.* Gold or any other Metal.—After eighteen months of constant use and experiment with this cement, I corroborate my statement made in the Dental Cosmos of June, 1871. In addition, I would say to the profession who are anxious to save decaying dentine, try it. Use the same care and pains that you do with your gold or other metallic fillings,—moisture is as fatal to it as to gold. I resort to it or os-artificiel frequently, as a base for gold, in sensitive or frail dentine. If it is sufficiently hard, and will resist the secretions of the mouth (and it does), why use gold? Do you say for looks' sake? the argument is in favor of the *cement.* No nation admires the appearance of gold in the mouth but Americans, and we are fast losing our fondness for it. Gold nor any other metal has any affinity for dentine, and will not adhere to it any more than oil and water will mix.

Dr. Chupein, of Charleston, says in the January number, "We should touch it lightly, for any operator using it is building a professional reputation which will not stand the ordeal of professional criticism. If we arrest decay of dentine, and build it anew, that it may be serviceable to the possessor, rendering an equivalent to our patients for what we receive, we will make a reputation which will stand." Dr. Victor Du Bouchet, Paris, France, says: "It is urged by gentlemen who use nothing but gold, that this cement will debase the profession, as vulcanite has done." Vulcanite is a good thing, and has been a God-send to many whose means would not reach a gold plate. To be sure, the profession has been imposed upon by an improper tariff on a patent, but I cannot see that it has debased the profession; it has certainly superseded metallic bases; and so will cement in filling. I agree with the doctor that it is a good filling which saves the tooth. Whatever is beneficial to our patients, or results in good, cannot debase our profession. I once heard a physician say, if he was sick he preferred to die scientifically than to be cured by a quack. Who are *quacks?* Among them are, I think, those who are opposed to exhibitions of skill or mechanism, for fear they will debase the profession. We should give our attention to new things sufficiently to test their merits. We will save teeth with gold or other metallic fillings, till we know of something better. The qualities claimed for Guillois's cement are certainly superior to any metal, and have proved themselves so to my satisfaction.

In regard to its manipulations, enough has been said by different writers to enable any practical dentist to use it.—L. N. Hutchinson, *Big Rapids, Mich.*

Rubber Tubing for Separating.—When the wedge is used only to push back the margins of the gum, and prevent its contact with the cervical edges of approximal cavities, it sometimes, owing to close contiguity of the roots, causes excruciating pain. I find a half section cut from rubber tubing, of appropriate thickness, answers a better purpose without causing any pain whatever. I have only to increase the tension until it will pass between the roots, and as far towards the alveolar border as desired, and then let go. Try it —S. S. S.

Arsenic in Sensitive Dentine.—I have found by experiment that to use the ordinary arsenical paste with safety to the life of the pulp of the tooth, where you wish to remove excessive sensibility previous to excavating for filling, that it is not necessary to retain it in the tooth longer than five or six hours; remove it, fill with cotton or some other material, and leave as much longer, or even a day or two if it happens to be more convenient, and the object is accomplished with safety.—M. W. PARSONS.

We give place to Dr. Parsons's method of using arsenic, but doubt the propriety of employing it in any case for lessening the sensitiveness of dentine, believing its use always attended with danger to the vitality of the pulp.—ED.

FOUR EXTRA MOLARS.—While filling teeth for a young lady the other day, I noticed a very *unusual* thing about her mouth,—*i.e. four* perfectly sound good-shaped molars on *each side* above and below; neither are they crowded or irregular. If I could have persuaded her to permit an impression to be taken, would have sent it for your inspection. It is something new to *me* at least, never having heard of such a case before. Before extracting one tooth, she had thirty-six full-sized, well-shaped teeth.—N. D. W.

CRYSTAL GOLD.—As your journal seems to be a very proper medium through which to make suggestions to the profession, permit me to occupy a short space to call the attention of its members to the *shameless* article of crystal gold which is being palmed off at *regular prices*, and which we are obliged to use—from the monopoly of its manufacture—or else wholly discard it from our practice. There was a time when it was a pleasure to use gold in this form, and I am one of those who have relied on it to a very large extent in preference to any other form of adhesive gold; but I am gradually finding my *underpinnings slipping out*, and the ground upon which I stood *quaking* beneath my feet. The query is, What is to be done? With these thoughts, it occurred to me that an appeal to the profession, or to *any* who are engaged in the manufacture of gold for dental purposes, might possibly solve the problem, and bring something into the market which might equal if not surpass crystal gold in its most palmy days. While we are dependent on the caprice of *one man*, and that selfish independence which implies "*Take this, or nothing*," it certainly is high time we look about and see what can be done. If the manufacturer of crystal gold can afford to stir up the latent energies of a whole profession, I certainly, as an humble member, can afford to wait. It is true we can discard it altogether, and there are many who have already done so, and perhaps this is the most effectual way to bring it back to its old standard; yet it seems to me that *ventilating* the subject, and an endeavor on the part of the profession to excite competition in such an important field, will most certainly bring the best fruits.

I write this with no intention of doing any man harm, but of doing *ourselves good*. I hope the profession will freely communicate their convictions and suggestions on this important question, to the end that we may be *mutual* gainers.—B.

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## THE RUBBER QUESTION.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK—SPECIAL MEETING.—At the request of the several district societies of the State, the Executive Board called a meeting of the above society at the Mott Memorial Rooms in the city of New York, on Tuesday, February 13th, 1872, for the purpose of uniting in a plan to contest the validity of the so-called Cummings patent, and prevent the extension of the Goodyear rubber patent.

The dentists of New York and Brooklyn, at a mass-meeting, appointed a committee of ten to watch and conduct, on the part of the dentists, the defense in what is known as the Gardiner suit. The committee reported what had been done by them, and suggested to the society what seemed to them the best course to pursue.

A resolution was passed, requesting the several district societies to appoint a committee to act in concert with the committee now appointed by the dentists of New York and Brooklyn, for the purpose of raising money to pay counsel fees in testing the validity of the so-called Cummings patent and the extension of the Goodyear patent. A committee of five was appointed to circulate a petition to Congress against the extension of the Goodyear patent.

The following resolution was unanimously passed:

*Resolved*, That we have heard with satisfaction of the action taken by the committee of ten appointed by the dentists of New York and Brooklyn in the suit between the Goodyear Dental Vulcanite Company and Dr. Gardiner, and that we heartily approve the course pursued by them, and pledge ourselves to do all in our power to assist them.—CHARLES BARNES, *Secretary.*

MASSACHUSETTS DENTAL SOCIETY.—Meeting called to order at 7½ o'clock, the President, Dr. Cooke, in the chair. Records of the last two meetings read and approved.

Dr. T. D. Shumway, of Plymouth, read an interesting paper on "Ivory Points" for filling.

As it was voted at the last meeting to consider the rubber question at this meeting, it was immediately attended to.

Dr. Codman said he had received a letter from Dr. Bishop, of Worcester, saying he had a meeting of the dentists of that place at his house, and they had signed the notes to the amount of several hundred dollars for the purpose of carrying forward the suit.

Dr. Moffatt, as chairman of the committee of three appointed to draft a series of resolutions on this subject, made the following report, which was accepted and adopted, and the committee discharged:

*Whereas*, Our brethren of New York and Brooklyn have taken initiatory steps in an effort to test the validity of the Cummings patent, and call upon the dentists of the United States for aid;

And *whereas*, This patent, which we firmly believe to be a fraud and a swindle upon the profession and the public, is supported by money wrung from them in no stinted measure, and by that money is to be still further perpetuated for a term of years longer, unless the present effort is successful;

And *whereas*, From lack of unanimity among the dentists, previous attempts to defeat this patent have failed, and there is now no hope of success, except through the strength of a thorough and combined movement; therefore

*Resolved*, That the Massachusetts Dental Society most heartily approves and pledges its earnest support to this cause, and calls upon all members of the profession throughout New England to join them in their endeavors to give material aid and sympathy.

*Resolved*, That the plan adopted of issuing notes which are to be collected only in case of success, commends itself to our judgment, and that we will do our utmost to secure as large a sum as possible by this method.

*Resolved*, That as words are of little worth without deeds, whoever would show his sympathy and be thought in earnest, must act by subscribing at once and freely, and that he who holds his hand will have no right hereafter to complain if through his remissness and those like him the case goes by default, and this incubus is finally saddled upon him and his brethren.

Several hundred dollars were subscribed this evening, with promises of more from those living out of the city.

On motion, adjourned.—C. WILSON, D.M.D., *Rec. Sec'y*, 50 Allen St., Boston.

PENNSYLVANIA CONVENTION.—A convention of the dentists of Pennsylvania was held in Philadelphia, February 27th, 1872, called for the purpose of devising ways and means to test the validity of the Cummings patent.

The following officers were appointed;

President, Dr. A. B. Robbins; Vice-Presidents, Drs. McCalla and Peirce. Secretaries, Drs. Charles J. Essig and J. C. Green; Treasurer, Dr. Spencer Roberts.

Resolutions were adopted, to the effect that Cummings's patent, as held by the Dental Vulcanite Company, was a monopoly of a dangerous and damaging character, and most injurious to individual enterprise; that it was a species of imposition, and the dentists of the United States were recommended to refuse to purchase a license from the company which in any way acknowledged the validity of the patent.

An executive committee, consisting of the following gentlemen, was appointed to organize throughout the State, and to receive contributions: John McCalla, Lancaster; G. B. McDonneld, Conneautville; H. H. Martin, Williamsport; G. W. Neidich, Carlisle; Francis Hickman, Reading; J. C. Green, West Chester; M. E. Gillespie, Pittsburg; James Truman, Philadelphia; C. N. Peirce, Philadelphia. Officers of the Committee: John McCalla, President, Lancaster; C. N. Peirce, Secretary, 501 N. 7th St., Philadelphia; H. H. Martin, Treasurer, Williamsport.

# SUPREME COURT OF THE UNITED STATES.

No. 133.—*Gardner* vs. *Goodyear Dental Vulcanite Company et al.* Appeal from the Circuit Court for the District of Rhode Island.—This is a suit brought by the Goodyear Dental Vulcanite Company against Gardner, a dentist practicing in Providence, for an alleged infringement of a certain patent issued to one John A. Cummings, in June, 1864, for making dental plates of hard or vulcanized rubber. The case went against Gardner below, and it is here contended that the invention patented by Cummings is not legally the subject of letters patent, because it consists in the mere substitution of particular material for other material which had been previously used for the same purpose in the same way, and that reissue of the same involved in the suit is not for the same invention for which the original patent was issued. Also, that John A. Cummings was not the original or first inventor of the improvements patented. It is also urged that the Goodyear Dental Vulcanite Company is not a corporation competent to take and hold a patent; and that the reissue obtained by the Goodyear Dental Vulcanite Company is void, because the original patent was not surrendered according to law. It is urged further that the company is not the owner of the patent.

This case was argued on Monday, March 18th.

John A. Foster and Samuel J. Glassey, of New York, counsel of the New York Committee, and B. F. Horwitz, of Baltimore, counsel of Baltimore and Washington Committee, all for appellant; Causten Brown and B. R. Curtis for appellees.

The argument on this case is in. It remains now with the court to make and announce its decision. Such decisions are usually made in about two weeks after argument. No sane man will think that the decision of this case will be any other than a just one. By this we mean, that in exact accordance with the weight of law and testimony as presented in the briefs, points, and arguments of the advocates, as limited by the record, this decision will come forth. If there existed proof which had value, and it was not put in, or if there was law which might have been applied and it was not cited, on either side, the opportunity is lost. The case will be decided fairly as presented, and according to the weight and within the limits of the presentment.

We have at this writing no such full report as would justify a prejudgment or calculation of what, from the weight and ability of the arguments on both sides, this decision is likely to be. We have only the statement of a legal gentleman who was present during nearly all of the argument, and who, knowing our deep interest in it, has given us a recital of his recollections. We deem it imprudent to repeat the statement as he made it, or to give currency to his anticipation of the result; but it not being possible now to prejudice the case in any way, it is a duty incumbent on us to say here—not knowing whether the result will be favorable or adverse to the dental profession—that for many reasons we were always opposed to having this Gardner appeal case go to final hearing. Even if it succeeds, and the Cummings patent is declared bad, and thereby made void forever, the risk was too great.

This appeal case was forced upon the dental profession fully made up, loaded with stipulations which were manifestly in favor of the Bacon party, and when but a brief period remained before the hearing. The profession was cornered, and must intrust the full case in the hands of those who controlled this appeal, and be concluded thereby if they joined in it, or be concluded by default if they refused to join. This was to our minds a situation into which the dental profession need never have been put, and into which those who did it had no right to put them.

That we subscribed some money to aid our friends who were in, and to gain such a standing with those who were conducting it as would enable us to re-enforce them and make the case for the dentists as strong and safe as under the circumstances it could be made, was one thing; that having done this, we utterly refused to indorse statements which we knew to be false, or to induce a single person by our example to put a dollar into it except on his own individual judgment, was another thing; we did both. We have been pretty liberally censured for both—separately; but we submit to no censure in this matter. Win or lose, in the case our conduct has been sincere, straightforward, and consistent with the knowledge in our possession, the full statement of which will justify this assertion; but we feel constrained to withhold it until after the decision is made.

S. S. W.

## REPORT OF THE HEARING.

SINCE the preceding article was written and printed, we have received additional information of great moment, as reflecting the impressions and hopes of several members of the profession who attended the hearing of the Gardner Appeal case, in Washington, as deeply interested listeners. These gentlemen, being members of several committees representing a large number of contributors to the maintenance of the appeal, have reported that they are well satisfied with the zeal and ability manifested in its presentment to the court by their advocates.

We are glad to know that these intelligent gentlemen hope for success. They are free from the fears that beset us so strongly. We concede to them (as they have had so favorable an opportunity to judge of it) the last word in our report of this case. They all express anticipations of victory, which we fervently hope may be realized.

If space permitted, we would like to publish several letters from those who were present; they are full of good cheer at the prospect of the odious tyranny of the Bacon party being cut up by the roots.

We yield a cheerful compliance to the request of the New York and Brooklyn Executive Committee by publishing the following notice of their meeting and the resolutions passed. We have stopped the press and displaced advertisements (the other forms being all worked off) to give room for them.

The interest felt by dentists in every section of the country in all that pertains to this question is our sufficient apology for any delay caused by the effort to furnish the latest news.—S. S. W.

### RESOLUTIONS OF NEW YORK AND BROOKLYN EXECUTIVE COMMITTEE.

At a meeting of the Executive Committee of New York and Brooklyn, March 21st, 1872, to hear the report of the delegates to Washington, the following resolutions were adopted, and it was desired that copies should be sent to the dental journals for publication, as a tribute eminently due to the gentlemen mentioned:

*Resolved*, That the energy, ability, and integrity which have been shown by our counsel, General John A. Foster and Samuel J. Glassey, Esq., in the preparation and presentation of the case of B. E. Gardner against the Cummings patent, just argued in the U. S. Supreme Court at Washington, entitle them to this recognition of their services by the Committee, and merit this public acknowledgment of their untiring labor and skillful management of the case. Also,

*Resolved,* That the Committee gladly recognize their obligations to the gentlemen of the Baltimore and Washington Committees, and to their counsel, Orville Horwitz, Esq., for the efficient support they have so promptly and cheerfully given to the measures which it is hoped will result in our speedy and final success.

C. A. Woodward, *Chairman.*
W. A. Bronson, *Secretary.*

New York, March 23d, 1872.

THE

# DENTAL COSMOS.

Vol. XIV. PHILADELPHIA, MAY, 1872. No. 5.

## ORIGINAL COMMUNICATIONS.

### DENTAL PATHOLOGY AND THERAPEUTICS.

BY J. FOSTER FLAGG, D.D.S.,

FORMERLY PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS IN PHILADELPHIA DENTAL COLLEGE.

[Entered according to act of Congress, in the year 1872, by J. Foster Flagg, D.D.S., in the Office of the Librarian of Congress at Washington.]

(Continued from page 179.)

### Anæmia.

Anæmia, as the word implies, is that condition in which *deficiency of blood* is the prominent characteristic. The causes which induce it are hemorrhages, fluxes, improper nourishment (either in quantity or quality), exclusion from light or air, parenchymatic degeneration, and uterine complications. It is divided into two classes, *acute* and *chronic.*

*Acute anæmia* is the more or less immediate diminution of the normal quantity of blood by "hemorrhage," or direct loss of that fluid. The morbid phenomena exhibited as the result of such loss are pallor, coldness; weak, small pulse; muscular debility, gasping, faintness, complete syncope; and if, upon the establishment of this condition, the hemorrhage does not cease, death finally ensues.

The various causes upon which this condition is liable to depend are *blood-letting,* sometimes; profuse "*flooding*" (as it is termed) after child-bearing; *traumatic hemorrhage,* or bleeding from wounds; *spontaneous hemorrhage,* the result of hemorrhagic diathesis; the *rupture of aneurisms* and the *ulceration of large vessels* in the progress of diseased action.

The symptoms of anæmia are considered to be due to the abstraction of the stimulus afforded by the blood to the vital organs, and consequent non-performance of their duties, and the *treatment* is based upon this conclusion. It is therefore necessary,—1st. To use the proper appliances and remedies for the suppression of the hemorrhage (these will be given in place dentally in connection with alveolar hemorrhage). 2d. To supply fresh air and the needful stimuli to respiration as the support of vital action (cold water sprinkled upon the palms of the hands and forearms, ammonia near the nostrils, etc.). 3d. The most perfect rest. 4th. Such food and medicines as will best restore the normal condition as regards quantity of blood.

*Chronic anæmia* is that weakened condition which is due to a loss in quantity or quality, or both, of blood consequent upon long-continued influences. The symptoms in this connection are morbid, or complete want of appetite, imperfect digestion, offensive breath, indisposition for exertion, muscular debility, constipation, nervous derangement, mental depression, peculiar, sickly, greenish-yellow complexion, dropsical effusions, palpitation, tinnitus aurium, convulsions, and pain consequent upon causes which would, under other circumstances, be too slight to produce such results, and which is ordinarily denominated "neuralgia."

The treatment of this kind of anæmia consists in placing the patient under moderate, continuous tonic influences, and the less or more gradual removal of the cause according to judicious possibility.

The medicinal tonics mostly beneficial are combinations of the preparations of iron, some one of the "bitters," such as columbo, quassia, gentian, etc.; some slight stimulant, such as ginger or pepper, and some such purgatives as rhubarb, senna, sulphate or citrate of magnesia, if there be no uterine complication, or if there be menorrhagia; or *aloes*, together with myrrh, phosphorus, and quinine, if there be amenorrhœa. In addition to these, *moderate* exercise in the open air, *ostensibly for the accomplishment of some immediate purpose*, journeying by easy distances, short visits to salt air, and long visits to mountain air, the use of the waters of some chalybeate or other saline spring, and a judicious apportionment of time as to occupation, reading, enjoyment, rest, sleep, etc., will be found productive of desirable results.

## HYPERÆMIA.

*Hyperæmia* is the term for the opposite condition to that which we have just considered. This is also divided into two classes, *general* and *local.*

*General hyperæmia*, or *plethora*, as it is more concisely expressed, is due either to the formation of blood in too great quantity, or to the fact that, together with good digesting and assimilating powers, there is not conjoined a sufficient amount of exercise to induce a healthy consumption of the fluid which is the result of these functions. The supply, therefore, exceeding the demand, the blood-vessels become gradually distended, the pulse full, the face florid, the indisposition to exertion increased, and the appearance of the individual is that of bloated satiety and unhealthy development. *Plethora* thus induced may gradually reach a remarkable extreme without producing any apparent unpleasant results; but one in this condition is just upon the brink of serious disorder, and is liable to become the victim of maladies established upon the occurrence of *exciting causes* absolutely so trivial as not to command the least attention.

*General plethora* is divided into *sthenic* and *asthenic*, these divisions depending upon the degree of tonicity and irritability of the various tissues. Thus, in *sthenic plethora* we find excess of blood, together with increased irritability and tonicity,—pulse strong and full, functions vigorous, both mental and physical, and the general tendency markedly toward conditions of febrile excitement and high grades of local hyperæmia.

*Asthenic plethora,* on the contrary, is excess of blood with want of irritability and tonicity; general or systemic "oppression" is the result, and functional activity is impaired. This condition is induced by one or more of such influences as fatigue, illness, want of exercise, abuse of sedative medicines, continued heat, impure air, improper food, advance in life, and continuous excitants, either medicinal or as immense requirements either of mind or body. These, in greater or less degree, entail at first what is termed "habit" or the *acceptance of a condition*, but eventually they destroy altogether both the strength and the ability on the part of tissue to respond, and leave the subject an easy victim to disease.

The treatment of general plethora is,—1st. In extreme cases, blood-letting, a remedy which, though comparatively seldom resorted to, and I think wisely, is, nevertheless, in its proper place and under the direction of educated judgment, truly a good old institution. 2d. The use of sedatives or laxatives and alteratives, or tonics and alteratives, together with the reasonable abandonment of such mode of life or other cause or causes as had hitherto exercised an injurious influence, and the adoption of such changes as shall tend toward the side of *good* rather than that of *evil.* The important difference in the treatment of the two kinds of plethora is this,—that in sthenic plethora sedatives together with alteratives are indicated, while in asthenic plethora tonics and even stimulants with alteratives are the proper remedies. The diet in sthenic plethora should be light and limited, in asthenic plethora rather nourishing. In the sthenic, exertion should be insisted upon in sufficient amount to benefit by consumption of the vital products; in the asthenic, it should be so regulated as to give activity to vitality and energy to the system.

*Local plethora, or excess of blood in a part,* is divided into three varieties, two of which are seemingly comparatively simple, while the third is quite complex. For these three conditions I shall employ only the terms "determination," "congestion," and "inflammation;" and, regarding them as occurring in this order in every instance of hyperæmia, I hope, by this method, to obtain a more ready recognition of the various stages in which local plethora requires treatment at our hands, and thus simplify the adaptation of remedies.

The exciting causes of local hyperæmia are divided into three classes of irritants, the *mechanical, chemical,* and *vital. Mechanical* causes are exemplified by the ordinary "splinter," or any other foreign substance, of itself innocuous, but the presence of which in a tissue induces that effort which is designed to remove it; also, anything which can inflict contusion or laceration. *Chemical* irritants are those agencies which possess the power of decomposing animal tissues, either living or dead, such as strong acids or alkalies, corrosive salts, and very high degrees of temperature. *Vital* irritants are such as act only upon tissues which are possessed of vitality; these are exemplified by such applications as mustard, Spanish flies, red pepper, arsenic, putrescent tissue, and moderately high and very low degrees of temperature, while it is understood that temperature varying from 48° to 100° F. is not ordinarily regarded in connection with pathology. We find, also, certain medicaments which, by being taken in sufficient quantity into the system, act, in some manner not clearly, if at all, understood, to cause local irritation, which will eventuate in inflammation. Of these, we have arsenic, phosphorus, calomel, etc. We have, also, the endemic, epidemic, and infectious poisons, which we shall regard as belonging to this class of irritants.

## Local Hyperæmia.

When any transparent tissue (as the web of a frog's foot) is placed in a position to be viewed, and is then sufficiently magnified, upon the application of an irritant, such, for instance, as a small portion of the paste that is generally used for the devitalization of a dental pulp (arsenious acid, acetate of morphia, and carbolic acid), no effect is, for a time, observable; but something is undoubtedly being done; irritation is being accomplished imperceptibly; deviation from a normal condition is occurring even though undetected by the microscope. This it is important to remember, in order that we may have clearly in the mind just what may exist in connection with troubles of which we shall have to speak hereafter, that we may recognize the possibility of the presence, for a certain length of time, of an irritant capable of the greatest amount of harm, and yet not making itself known even to the individual whose tissue is being irritated. After awhile, however, its presence announces itself,—the arterial capillaries at first shrink, and the motion of the contained corpuscles (red and white) is increased in velocity, until it becomes too rapid for the eye to follow. Meanwhile the calibre of the capillaries has become even larger than normal, corpuscles pass in vastly greater number, alternate shrinking and expanding of capillaries continue, while a reddish flush is seen gradually to become more pronounced; simultaneous with this we find slight increase of temperature. This condition we will consider as

### DETERMINATION OF BLOOD.

In the individual, then, as the result of irritation, we must of course believe that the same changes take place, and we find beside the given signs of alteration (redness and warmth) certain symptoms in connection with it. At first we have the "knowledge of the presence" of an irritant; this increases until we have the sensation of uneasiness, then decided increase of sensibility, together with throbbing,—everything, it will now be observed, has changed from a physiological to a markedly pathological state,—we have passed from hypernutrition fairly into the confines of disease. I do not propose to discuss in the least the theories which have been and are being advanced as to the manner in which these changes are induced, for, practically, they have presented themselves to my mind as at least unsatisfactory; though I would, of course, desire that my readers should inform themselves in this direction, even if it be only that each for himself shall corroborate or refute my conclusions. When determination of blood is established, it must be regarded as the first form of local hyperæmia,—as the result of irritation, —with the concomitants of enlargement of the arterial capillaries; the presence of too much blood in the part; the motion of the blood greatly increased; undue warmth; bright-red color; decided increase of sensibility, and throbbing, synchronous with pulsation.

For the treatment of this condition we have—1st, if possible, *the removal of the cause;* 2d, *blood-letting;* 3d, *counter-irritation* and *derivation.* When from any cause an undue portion of blood is directed to any given point in the system, it is an absolute withdrawal of just that amount from the remaining portions. Possessing quite a number of medicaments which increase functional action in the intestinal canal (purgatives), perspiratory glands (sudorifics), kidneys (diuretics), and skin (epispastics), and deducing from their effects the necessarily increased flow of blood in their several directions, the philosophy of their employment is readily recognized. Of all of these, the drastic purgatives are by far the most certain and powerful evacuant remedies which can be used to establish a flow of blood that shall be particularly efficient in counteracting determination to the head and jaws. 4th. *Astringent* applications, locally, will tend to promote contraction of the arteries. 5th. *Emetics,* when used in doses insufficient to produce emesis or even decided nausea, but just enough to cause languor or debility, will, by a general relaxation, tend toward systematically equalizing the flow of blood. 6th. *Sedatives, Anti-spasmodics,* and *Anodynes.*—These remedial agencies are of exceeding utility in the practice of our specialty; their employment is of daily occurrence, and it is in this connection that the reason of this is understood. Sedatives are employed to diminish the force of vitality; antispasmodics (both mental and medicinal) are appropriately exhibited in connection with cases having nervous complications; and anodynes (for the relief of pain) are universally acceptable. Of remedies which are classed under these heads, we have tincture of aconite, aconitia, carbolic acid, chloroform, digitalis, hyoscyamus, morphia (acetate, meconate, and sulphate), "phénol sodique," tincture of valerian, tincture of veratrum viride, veratria, etc.

*Conclusions.—Determination of blood* consists *visibly* of too much blood in a part, with its motion increased. Its location is in the arteries and arterial capillaries. Its exciting cause is the presence of an irritant. Its effects are increased functional activity, amounting to disease. Its treatment is by the various means of removal of cause, depletion, counter-irritation, derivation, constringing, general relaxation, sedation, systemic soothing, and local pain obtunding.

(To be continued.)

## REPLY TO THE ESSAY OF DR. O. A. JARVIS ON DR. ARTHUR'S SYSTEM OF THE "TREATMENT AND PREVENTION OF DECAY OF THE TEETH."

BY ROBERT ARTHUR, M.D., D.D.S., BALTIMORE, MD.

THE author of a book does not usually reply to the criticisms it may call forth. If his work is a formal treatise on a scientific or practical subject, he is supposed to have argued his case as fully and exhaustively as he is capable of doing, and if critics are unjust or incorrect, he trusts to the book itself to vindicate its own character. This, on the whole, is a very good rule, and I should have no disposition to depart from it if I did not consider the system of treating dental caries, to which I have recently called attention, of so much importance to the welfare of the community, and the best interests of the dental profession, as to be very unwilling, silently, to see the character of the system misstated. I have, indeed, challenged discussion of the method referred to, and hold myself bound to endeavor to meet any objections made to it which seem to merit attention. I propose, therefore, to make some reply to the strictures of Dr. Jarvis, for the benefit of those who have not read my treatise, as I have but little apprehension that the book itself will suffer very seriously from his paper, in the estimation of those who have carefully considered the facts it offers and the reasoning based upon them.

In Dr. J.'s short introduction to his article, I am surprised to find that he is under the impression that my work is "certainly calculated to weaken the confidence of the people in dentists and dental operations." I find it difficult to understand the grounds upon which he bases such a statement. Certainly he does not find them in the work in question. It is nowhere in it pronounced, as he states, that the "plan of filling is a failure" as applied to the proximate surfaces of the molar and bicuspid teeth. I have, it is true, pointed out the great difficulties attending the operation of filling for the preservation of these teeth when caries has been permitted to attack the proximate surfaces and allowed to make any considerable progress. I have proposed that greater care should be taken in the management of the teeth of children so as to simplify this operation when required, and in certain cases to substitute other treatment which I have endeavored to show to be preferable when it can be adopted. I have stated (and who will attempt to deny the truth of this statement?) that large numbers of persons engaged in the practice of dentistry are incapable of saving the teeth after they are partially destroyed by caries, or if capable, are unable to command sufficient compensation for the labor, skill, and material necessary to accomplish the best results. I have shown how imperfectly dentistry is but too commonly practiced, and have endeavored, in some degree, to place it in the power of people generally to distinguish between capable and faithful practitioners, and the men who, in the positions of dentists, not only plunder but irreparably injure those who trust them. Every word I have said has been in the true interests of the dental profession, and I challenge the production of any portion of my book which will show the contrary. I have not space in this article, however, to pursue this subject further, but I hope on some other occasion to say more in regard to it, and to say it much more strongly than I could venture to do in the publication in question.

I will not undertake to reply to Dr. J.'s article in the order in which it is written, but will take up such of the points he has made as seem to merit attention. His views are not uniformly stated with clearness, and brief references are made to points which it would occupy more space to notice than I can command, and to which obvious replies will occur to the reader.

Dr. J. has correctly stated the general principle of the system I have advocated. This is the artificial permanent separation of teeth closely in contact, in such a manner as to render them in a great measure self-cleansing, when caries has attacked their proximate surfaces, or when, from general considerations, which every well-informed dentist should comprehend, they are reasonably certain to be attacked.

The first ground of objection Dr. J. finds to this system, or at least to the manner of making the separations as I have advised, is "the injury to the gums and processes by the pressure of food in the act of mastication."

Dr. J. ignores the fact that I have already met this objection, and does not notice the reply made. He says: "There is positively no weight in the testimony of a *few* patients that they experience no inconvenience," etc. As the extract is short, I will insert here the reply to which I refer. Among other objections noticed, is:

"The annoyance and inconvenience experienced during the act of mastication as a consequence of the separations.

"The same reason given for the early separation of the teeth, viz., the avoidance of the pain of the operation, applies here also. If the teeth are permitted to decay so far as to require filling, the spaces made are frequently a source of very great annoyance, as the width and form of the separations must be modified in accordance with the character and extent of the decay. It is commonly the case, therefore, that the contact of certain kinds of food forced between them in the act of mastication, produces so much irritation of the gum as to keep it in a constant state of slight inflammation and exalted sensibility. In many instances such teeth, from this cause, become nearly useless. The dentine, too, becomes sensitive as the result of decay, and the contact of anything above or below the temperature of the mouth may give severe pain. But the separations, made at a period so early that they can be rendered great or slight at pleasure, are rarely the cause of any serious annoyance. In regard to this feature of the matter, I have made the most careful inquiry of many persons whose teeth have been preserved by the means described, and the almost universal reply has been that no inconvenience is experienced from this cause. Sometimes, but rarely, complaint has been made, but the difficulty has amounted to mere annoyance. The exposed dentine may become more or less sensitive after it is first exposed, but this is at once relieved by an application of powdered nitrate of silver to the affected surfaces, and after the calcification of the fibrillæ it entirely disappears." Page 171.

The reader will at once perceive that Dr. J. has not correctly stated the testimony upon which I rely, when I declare that the objection he makes and that others have made has really no force or weight.

Dr. J. rather ignores the value of any testimony of this character, no matter how numerous the witnesses may be, and intimates that, however strong their statements that they suffer no such inconvenience as he describes, from the separation of their teeth, they are not to be relied upon, as people may get used to more serious trouble than this. But it may be said that if persons who have undergone this treatment become so well accustomed to the damage done that they are no longer conscious of their sufferings, it amounts to the same, practically, as if they did not suffer at all.

But while Dr. J. is reluctant to "appeal to the people for their verdict," as to their own experience in a matter of this nature, he is willing to accept, as testimony, as reliable as any that I have offered, the "universal horror and undying dread with which they have regarded this practice for thirty years, and which is often referred to in this book as prejudice." He loses sight of the fact that the system of separating the teeth, as I propose, has not been practiced for thirty years. It has not been practiced at all, until recently, so far as I am aware, by any one but myself. The teeth have been separated, by filing, for a much longer period,—long, indeed, before either Dr. J. or myself were born. But until recently it has not been attempted except when caries was observed to be actually present. This, as I have explained, changes the conditions materially. The evil results to which Dr. J. refers are due not to the making of the separations, as I have advised, but to making them under very different circumstances.

Now, let us endeavor to ascertain how much of prejudice and how much of testimony there is in this "universal and undying dread" of the artificial separation commonly known as "filing" the teeth, in the treatment of caries, and which has been, and is by Dr. J., confounded with the plan I propose. Every one knows what prejudice means. It has been defined as "judgment before knowledge, and not founded on evidence." One phase of the prejudice in the case under explanation is against the removal of the enamel as a result of filing or permanently separating the teeth. The public, and, strange to say, many members of the dental profession, are satisfied that the enamel protects the teeth from caries, and that the exposure of the dentine must necessarily result in an attack of this disease. I have shown, and I defy controversy on the point, that this is a fallacy. Is not such a judgment prejudice?

Another prejudice is that this treatment applied to the incisor teeth means their disfiguration. That these teeth have been mutilated, in this way, no one can deny. If the illustrations given in several editions of "Harris's Principles and Practice of Dental Surgery," and reproduced in the last, page 292, indicate correctly the manner in which these separations have been made, then I am not surprised that both the public and competent dentists should have a "horror and an undying" aversion to such treatment. This, however, is not the practice I have advised. No disfiguration of these teeth is necessary in carrying out the system I have explained. It is not necessary to separate the incisor teeth in accordance with the illustrations in the work above referred to. If this is not prejudice, what is it?

There is another reason why the operation is regarded with so much dread, and that is because of its extremely disagreeable character. This I admit is not a prejudice, but I have explained a method of making the separations without employing the file, thus avoiding this very reasonable objection. I am satisfied that more effective means of accomplishing this object than those referred to, will soon be devised. I am already, indeed, with the aid of the burring and drilling engines now coming into use, enabled to avoid difficulties necessarily attendant upon the plan I have described.

Dr. Jarvis denies my statement that the incisor teeth may be treated in the way I propose, "without the slightest disfiguration." Before venturing to attempt to prove this, he obtains, in advance, the support of a "clerical" friend, who disposes of the statement referred to by a witty remark, which, although not professing to be extremely pious, I consider too irreverent, to use a mild term, to reproduce here. It may be said, by way of parenthesis, that other and higher considerations than good taste would have deterred Dr. J.'s "clerical" friend from employing such language as he has used; but, in these degenerate days, "clerical" gentlemen are to be found who say and do many things not exactly consistent with their holy calling.

After being fortified by the aid of his sapient and witty clerical friend, Dr. J. proceeds, in the following language, to show the injurious character of my practice as applied to the incisor teeth:

"These teeth are provided by Nature with a thicker, heavier portion of enamel, and especially the linguo-proximate portion, often somewhat in the form of a scroll, with more or less of a depression in the centre, or between the two enlarged portions of enamel. The distance between these two extreme points is as great or greater than between the two points immediately anterior, often a little depressed, being the exact points where decay is expected to make its attack. Can we claim that there is no deformity when this mass of enamel is removed which was placed at this particular point to sustain the cutting edges (which are very likely to be already checked, and so often break away), and to furnish a triturating surface in occlusion with the points and anterior surfaces of the inferior incisors, as important as the grinding surfaces of the molars? When the natural relations and conditions are changed, it *is* a deformity, and the cutting away of the front teeth at these points is a deformity both seen and felt. The front teeth, as well as the bicuspids and molars, are formed to protect the gums. The gums will bear to be wounded, but will not bear an unnatural, continued pressure." Page 124, DENTAL COSMOS, Feb. 1872.

Now, I deny that the cutting away of the linguo-proximate surfaces of the incisor teeth in the manner I have described, produces a "deformity." The primary signification of the word deformity is, "Want of symmetry or beauty." Disfiguration means, "Injury of appearance, the result of disfiguring; deformity." As applied to the teeth, these words must be taken as referring to their appearance to ordinary observers. The illustration of the manner of removing superficial caries or preventing caries, I have advised, I here reproduce, Fig. 1. The appearance of the labial surfaces treated in this manner are shown, Fig. 2. It is obvious that no disfiguration or deformity results from this treatment.

Fig. 1.

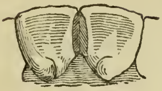
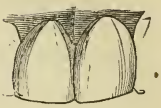


Fig. 2.



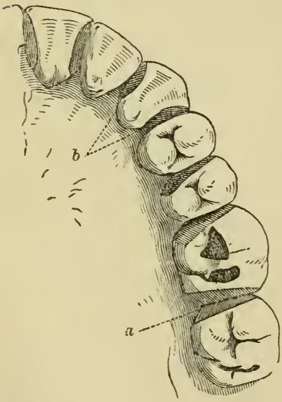
I have no space to give any attention to other fallacies which appear in the extract given. I may say, briefly, that it is a novel view to consider any portions of the surfaces of the incisor teeth, " as important as the grinding surfaces of the molars" for triturating purposes. That the " front teeth, as well as the molars, are formed to protect the gums," is a statement somewhat difficult to understand. It is generally supposed that the teeth are intended for important uses, in the preparation of the food for digestion. As to their protective power in relation to the gums, the latter seem to be very well able to take care of themselves, even after one or more or all the teeth have disappeared.

Dr. Jarvis finally rejects my system because it is unnecessary. He claims that if the same care of the teeth, which I advise, after the separations are made, were taken in time, it would entirely prevent the occurrence of decay. I am aware that this is the opinion of other members of the dental profession for whose views I have great respect. I am obliged, however, to declare that I have met with very little success in this way so far as the bicuspid and molar teeth are concerned. My practice is among the best classes of people in the community in which I am living. I have lost no opportunity of urging, in the very strongest manner, this kind of attention, but without such success as would justify any reliance upon it generally, as a substitute for such treatment as I have described. I shall be glad to learn how the prevention of decay in this way is managed. It will be very useful, if it is shown by what influence children or adults generally can be induced to take such care of their teeth as to prevent caries of their proximate surfaces, by their own efforts. The means I propose, while it does not remove the necessity of subsequent care, lessens the amount necessary, because, in a great degree, it renders the separated surfaces self-cleansing.

But Dr. J. does not himself rely upon this means of preventing caries, and offers what he claims to be a better plan than the one I have proposed and described of separating the teeth. This is the enlargement of what he calls the second " V." I am ready to concede that there may be value in Dr. J.'s suggestion as applied to certain classes of teeth, and to teeth of a certain shape. But it would seem obvious that it is not applicable to the teeth of all persons, or to all classes of the teeth of any individual. It will not be admitted that the proximate surfaces of "the teeth are never in contact, except at a small point." Dr. J. himself states, in another part of his article, that there are teeth of a "flat or square type." In such teeth, probably more common than those which come in contact, at a limited rounded part of the surface, there are large surfaces of contact; or if the whole of such surfaces are not in actual contact, they are in such close proximity that they afford secure places for the lodgment and retention of the secretions of the mouth. In the light of my present experience, I do not think the plan he proposes is applicable to such teeth as those to which I have referred, and while probably it might be usefully applied to a limited extent, it would fall far short of being a substitute for the method I have proposed, a method which I still claim may be employed for all classes of the teeth, with a small number of exceptions. Whatever value there may be in the plan of separation proposed by Dr. Jarvis, it requires closer consideration than has yet been given to it, and the test of practical application. I deny that the plan he proposes can be more easily practiced by the means heretofore relied upon. The new and beautiful appliances coming into use, certainly render this plan more feasible than it has been heretofore.

The second "V" of Dr. Jarvis is filled up during life by the gum, and caries rarely occurs except at its very apex, and frequently below the apex. The plan of treatment I propose, is to enlarge the first V of the molar and bicuspid teeth up to this apex. Enlarging it very little, or leaving it intact so that the line at this part just touches, as in Fig. 3, *a*. The projecting part of the dentine, for which Dr. J. inquires, is the apex of this wedge-shaped separation, which it is very obvious will prevent any other part of the surfaces from coming subsequently into contact. The line of contact here shown is not sufficiently large for the retention of particles of food, although it will allow the easy passage of the silk or tape used for cleansing, and will effectually, if the testimony of many patients who have undergone precisely this kind of treatment is worth anything, prevent the forcing up of fibres of tough beef, or any other kind of food masticated by these teeth.

Fig. 3.



In reply to Dr. J.'s question as to "how certain are we when we determine 'that decay is inevitable,'" I refer him to the book he has noticed, from pages 114 to 126, for all the argument on the subject I can make, and which the DENTAL COSMOS could not, in justice to other contributors, afford me space to insert.

Dr. Jarvis has questioned the "wisdom of advocating with so much boldness, a practice receiving such doubtful results in practice." It certainly requires a very great degree of boldness to venture upon such a statement as this, in face of the fact that the whole system advocated, in the book referred to, is based upon "results in practice." On page 162 is the following:

"If the system of treatment I have been so earnestly advocating in the foregoing pages were hypothetical merely, it could not be expected, especially as it comes into direct conflict with settled prejudices, that it would be viewed otherwise than with great distrust, however plausible it might appear. But it must be observed that the theory is the result of long experience and extended observation. Although many years since my views tended in this direction, I did not adopt the method hastily, but with great caution, watching carefully the results. These have been of the most satisfactory character."

Every argument, indeed, of the book, from the opening to the close, is based upon facts which no intelligent dentist can pretend to dispute.

If it does not require courage, it certainly implies a remarkable amount of self-complacency to enable Dr. J. calmly to expect that the readers of the DENTAL COSMOS, in view of the reasons he has stated for his convictions, will agree with him that the "plan of artificial separation of the teeth proposed in this book is not necessary; is not the best treatment; is a failure."

I beg to say that I trust I am free from that pride of opinion which would lead me to contend for any views I might entertain in the face of the truth. I have never lost sight of one great object in practicing my profession, and that is to render the greatest possible service in my power to those who intrust themselves to my care. I have from time to time published my views, when they appeared to me likely to lead to improved treatment, in order to enable others to do what I found of advantage to my own patients. Actuated by this spirit, I am ready to abandon any opinions I may have formed, when they are shown to be incorrect. So far as the views stated in the book, which has led to this discussion, can be shown to be fallacious, I hold myself bound to abandon them. I am certainly unable to discover any reasons in Dr. J.'s article to induce me to change my present views.

I have just read, in the April number of the DENTAL COSMOS, a report of the discussion which took place in the First District Dental Society of New York, after Dr. J.'s paper was read. While acknowledging the courtesy with which my views were treated, I must beg leave to say that, whatever other reasons than those stated the members of the society who opposed my views may have for withholding their approval of them, none were offered during the discussion requiring any reply.

I am reluctant to close this already long article without expressing my gratification at the many evidences which are reaching me, that leading men in our profession are carefully considering my recently published views of the treatment of dental caries. I am satisfied that, whether the system is adopted or not, it is leading to a careful scrutiny of the methods now relied upon for the treatment of dental caries. In the concluding sentence of a notice of the book, not by any means indorsing its views, one of the editors of the *Missouri Dental Journal* says that, "though we do not expect that the practice will be wholly adopted, we do think that it will exert a beneficial influence, and lead to more thought and investigation of the subject of which it principally treats." If the work in question accomplishes this much, or if it should lead to the adoption of the preventive treatment advised, during the process of shedding (and this has met with no opposition), I have reason to be satisfied with the influence the work is exerting, whether the system it advocates does or does not, as a whole, meet with approval.

## A FEW WORDS ON DR. JARVIS'S REVIEW OF DR. ARTHUR'S LAST BOOK.

BY E. A. BOGUE, M.D., NEW YORK.

As it is a real "pleasure to every right-minded dentist to receive any creditable addition to dental literature," Dr. Jarvis's review must be received not only with respect, as indicating the attention he has given his subject, but with pleasure, as showing the honest views held by a mind hard at work on physical problems connected with dental specialties; yet, as the same book may impress other minds quite differently, it is but fair to point out what may seem to be errors in his reasoning and showing. On page 122 of the DENTAL COSMOS for March, 1872, he states that the plan proposed by Dr. Arthur is "not confined to certain forms or classes of teeth, but is put forward as a 'new method,'—a *substitute* for filling." Now, had Dr. Jarvis said a *preventive* of filling, he would perhaps have come nearer to what Dr. Arthur really teaches; but this whole phrase must be regarded as too sweeping, if we will but consult the book itself. On page 103 (Arthur) we find these words: "Let it be clearly understood that this separation of the incisor teeth is *not advised indiscriminately*. . . . A dentist who is worthy of the name should be able to recognize such cases, and to avoid unnecessary and injurious intermeddling with any of the teeth." This looks as though the treatment advocated *were* "confined to certain classes of teeth." And on page 218 (Arthur) these words would seem to indicate, not that the treatment was intended to be a substitute for, but a preventive of, filling: "If it (the treatment proposed) has not been resorted to before the sixteenth year, it will be too late, in the great majority of cases, to attempt to apply it. It is more than probable that the decay will have progressed so far as to render filling of the proximate surfaces absolutely necessary." Following next after these lines, Dr. Jarvis, with a very proper appreciation of the state of the case, says: "The first point I make is, that the separation answers the desired end *only in so far as it renders the surfaces self-cleansing,*" etc. Precisely so; that is just the point that Dr. Arthur insists upon all along; the point upon which Dr. Eleazar Parmly laid most stress; the point upon which Hayden, Hudson, and probably Greenwood took their stand more or less intelligently, in all the separating of the teeth accomplished by them with the file or other instruments. After describing what he calls a "very common type of bicuspid," Dr. J. states that we all know they "are as subject to proximate decay as the flat or square type." It may be doubted if Dr. Jarvis meant to say this, or else, perhaps, we fail to comprehend him; for certainly he cannot mean to say that the short, round, plump teeth, yellow in color and dense in texture, are as subject to proximate decay as the long, pearly, or chalky-white teeth, invariably flat on their sides and with but little bulge anywhere,—the very type of frailty, and almost the unerring index of constitutional predispositions toward decay.

Further on, alluding to page 155, Dr. Jarvis makes a decided point in the ambiguity of Dr. Arthur's language; for one would scarcely understand, without very careful attention and the presupposition that the writer was a man of educated judgment, that in separating the teeth by chisels his general aim was to leave a point—*i.e.* position without magnitude—of contact, but a point approached so gradually by the cut slope that the floss-silk or tape had no difficulty in slipping by to the gum; or being withdrawn therefrom, yet enough of a point (or knuckle rather) to prevent the undue approximation of the teeth; *although* in this, as in all other dental, nay, human operations, failures occur, and must be looked for and remedied when they occur.

Now, to take up his objections: 1st. It is unnatural. So is the amputation of any part of the body; but if a congenital *de*-formity of any other kind occurs, do you hesitate to remedy it by surgical means? Arthur, page 154, says: "It will be seen that I do *not* advise the indiscriminate and almost unlimited filing of the teeth, as has been supposed." That is, he advocates this cutting only in those cases where to remove a part is to save the rest. 2d. The point of contact is and should be single, etc. True; and it is left so, generally, by Dr. Arthur's method, only it is transferred from the tuberosity of the tooth to as near the edge of the cementum as is practicable; and, when we come to know accurately the relative anatomy of the molar and bicuspid teeth, it will be seen that this is possible in a great many more instances than at first sight would seem to be the case. 3d. The injury to the gums and processes spoken of is theoretical; for, after examining quite a number of patients treated after this method, no gums or processes were found to be injured thereby; and as for getting accustomed to the sharp angles, etc., the testimony of seven or eight patients upon whom the operation has been recently performed is that there are no sharp angles, and there is no inconvenience, but, on the contrary, a great sense of relief and a feeling of perfect and unusual cleanliness. When injuries and corners of the kind spoken of are found, it may safely be asserted that the mode of operating in that case was not the mode advocated by Dr. Arthur or any other educated and carefully honest dentist. The fourth objection has to do with change of position after separation; an objection to the process on this ground alone would be equivalent to an objection to filling teeth, because some fillings come out or are failures; but it may be enough to say that, before an enlightened judgment, the failures in both cases are reduced to a small percentage. The fifth objection is unanswerable, perhaps; while the 6th needs looking to. The statement that "it is unnecessary" seems to come *ex cathedra;* but we, in this century, are much given to questioning our authorities, asking how and why, and examining for ourselves.

All of us who have been a dozen years in practice, especially among the wealthier classes of our large cities, know that there are teeth which, in the mouths of the most scrupulously clean and careful people, particularly ladies, *will* decay; and all our efforts at filling cavities in those teeth in unexposed places are abortive, for the reason that decay again supervenes, and the fillings require to be renewed over and over again; while, in the same teeth, fillings inserted in exposed situations remain unchanged during the time in which the others are, perhaps, repeatedly lost. Query. If, by getting a "self-cleansing surface," these fillings can be rendered durable, is the getting of such surfaces "unnecessary?"

Again: a second plan is proposed, and stated to be a "better plan," and one practiced by Dr. Jarvis. Dr. Arthur has practiced his method for twenty years, keeping accurate records of the results. The older dentists have practiced upon adult teeth something like the same plan, only not so neatly, for nearly eighty years, and the records of their successes have come more or less before all of us in the course of our practice, as their patients have come into our hands. Can Dr. Jarvis's "better plan" commend itself to us by an indorsement equally good? As for the "new method," which seems to refer exclusively to the preventive or prophylactic treatment of children's teeth, both permanent and temporary, but very largely in the systematic treatment of the temporary set, in view of the needs of the permanent,—can Dr. Jarvis candidly say that the pronouncement of the principles underlying the practice is not as new as the standing an egg on end by Columbus was to his interlocutors? It is no answer to say we knew it before, only did not put it into words. Knowledge is not communicable; if the germ is not in the man, to be impregnated by the thought that is cast out like seed, no knowledge will be conveyed. It is concisely put in the old proverb that so often falls upon ears that hear not, "It takes wit to find wit." In answer to a note of inquiry, Dr. Jarvis says, "Separation of the teeth, in any manner, has not constituted a regular feature of my practice; it can only be considered as occasional and incidental. . . . My attention was called to the subject in 1849. I will date my own practice from that time. I have no distinct records (of results). Cases treated by me are often presented, and I have abundant evidence of satisfactory and successful treatment."

It will of course be fully understood that the marring or cutting of the teeth in any way is fully recognized as an evil; but it is regarded as the least of the evils if its alternative be the loss of the teeth, or even their extensive decay.

If, therefore, Dr. Arthur has so systematized the old practice of cutting out the decay from affected teeth that he is able to enunciate the principles upon which it should rest, and to determine even when it should be used as a prophylactic measure as well as a remedial one, he has done us a service, and, through us, our students and patients, that we can never repay. But that does not mean that we are to cut all the teeth we can, but as few as we honestly can. On the next page of the DENTAL COSMOS Dr. Jarvis refers to imperfect fillings very justly and truly; but he seems to forget all along that the plan at which he is hammering away is designed to *prevent* the necessity for such difficult fillings that an ordinary dentist cannot make them. When he detailed *his* plan of cutting away the teeth, what did his "clerical friend" say to it? To speak of but one point more, for all the rest will sufficiently carry its own answer,—as to how the projecting dentine near the gum is to be got, and what the shape of the teeth will be after it is reached. It will only be necessary to set a few molars and bicuspids in plaster in the same relative positions that they bear to each other in the mouth, and to cut them in the manner proposed, to find out, and the lesson in anatomy will never be lost.

# THANKS TO PROF. ARTHUR.

BY A. C. HAWES, M.D.S., NEW YORK.

I desire to express through your pages my sincere thanks to Dr. Robert Arthur for the inestimable service that he has rendered, not only to the dental profession, but to the public, by his excellent, common-sense, and practical treatise on the "Treatment and Prevention of the Decay of the Teeth."

Scarcely any work has appeared for many years containing so many valuable facts, presented in a clear and convincing manner, and evidently the result of long and careful observation. His remarks upon the too common neglect and sacrifice of the first permanent molars, I am pleased to notice, entirely accord with my own ideas, expressed in the Dental Cosmos for May, 1866, at a time when a quite adverse opinion was generally prevalent.

I cannot but think that the publication of such a work as this just now will have a very beneficial effect, as it must surely tend to check some of the extravagant ideas that at present prevail in regard to dental practice.

The old landmarks that have been relied upon with entire confidence and satisfaction for so many years are being fast swept away. Ideas that were explained, taught, and practiced by such faithful and eminently successful operators as Dr. Joshua Tucker and the lamented and much-esteemed Dr. Elisha Townsend, and a host of others equally successful in that style of practice, are now but remnants of the past.

The "progressive," or "Young America" portion of our profession, seems to be running wild on "Splendid Operations," "Contour Fillings," and the "Tracing of Compound Sinuosities." As a lady recently remarked who had been carried through the *entire programme* of "modern practice" or "first-class dentistry" ("contour fillings" and all) by one of our "splendid operators," involving the loss of three of her teeth in less than one year, which could not stand the pressure: "It seemed to me that Dr. ——'s whole object and aim was to carry out a *principle*."

Simple operations which formerly required but little time to perfect, and with slight exhaustion to the patient,—operations that have stood the test of time for at least a quarter of a century,—have now become a labor of serious importance, both to the operator and his *victim*.

When a tooth can be filled in half or three-quarters of an hour, and in a manner that entirely precludes a doubt as to its future usefulness and durability, I cannot see any good reason why a "splendid operator" should spend an hour or *more* in cutting, carving, and drilling deep pits for retaining-points, until the strength of the tooth is greatly impaired, and then devote from one to three hours in "condensing" and beautifying the operation. There can be no doubt as to the value of such a filling, providing always that the tooth can "stand the pressure;" if not, of course this would not reflect in any way upon the operator, as the "*principle*" was correct, and the operation certainly "first-class."

I think I fully appreciate the numerous and valuable improvements that have been made within the last few years in our profession, and I endeavor to keep pace with all the *real* improvements that are so rapidly coming to light. Some of the so-called *improvements* that are now in such general favor in regard to the preparation and filling of ordinary cavities, seem to me to be far more ornamental than useful, while I admit that there are *very many* teeth requiring great labor, patience, and skill to properly prepare and fill, *with gold* (not amalgam). I do not believe that it is at all necessary to devote the same time and labor upon ordinary cavities, either in the proximate or grinding surface of the teeth.

"Contour" fillings are indispensable in many cases, and whenever required, either for the protection of the frail edges of a cavity, or for the future safety of the tooth, they should of course be adopted; but, as a general rule, I consider them quite unnecessary, and in very many instances positively objectionable. Such fillings cannot afterward be examined without great difficulty at the points where decay is most likely to occur, whereas, by adopting the plan recommended by Dr. Arthur, of making a permanent separation upon the inner portion of the teeth, either when decayed so as to require filling, or when the defect can all be cut away, "the exact condition of the fillings and the separated spaces," as he justly remarks, "can be ascertained at any time." This is an important point which he establishes,—"that no filling can be considered reliable unless every part of it can be readily inspected at any time after its completion."

I am very confident from my experience that after decay has *once* attacked the proximate surface of the teeth, whatever the treatment it may receive for its arrest, if the teeth are allowed to resume their former position and to come again into close contact, subsequent decay is *far more* likely to occur than where the entire surface of the enamel has been removed, the dentine properly polished, and a permanent separation secured. When *this* point can be intelligently settled, the question of "contour" and "elaborate" proximate fillings will be very much simplified. It is quite proper, of course, to give minute directions for keeping the defective parts perfectly clean, and to furnish floss-silk, beeswax, toothpicks, etc., but we all very well know that there is not one patient in fifty that will obey such instructions. Dr. Arthur very clearly explains that when the enamel is attacked by decay, it has no power of resistance; this, however, is *not* the case with the *dentine*, as it possesses the power of making an effort to protect itself from destruction. This is a fact of great importance to the full understanding of the subject under consideration.

## SEE FOR YOURSELVES.

BY W. E. DRISCOLL, BEDFORD, IND.

In the Dental Cosmos for March, 1872, commencing on page 121, is a review of Dr. Arthur's work on the "Treatment and Prevention of Decay of the Teeth."

Since reading the work in question we have been looking for a review of this character, feeling assured that if not carefully read a failure to gather the author's meaning was inevitable, and, as a consequence, all manner of objections would be fabricated. Such criticisms must always be expected, not so much from any fault of the author as the carelessness of the reader.

That the work is without fault no one will scarcely claim, but that this reviewer has missed the main objections we think it would be very easy to show; which we would do, did we not think a perusal of the work itself would afford the best answer to all this critic's objections. Besides, we do not care to foster the habit in any one to rely on others for his opinions made to hand. Let every one see and think for himself. It would hardly be creditable to the profession to be ignorant of a system that this book brings before their patients; and no review of the work will do in the place of reading it. It can and must speak for itself.

We have intimated that this review owed its existence to the carelessness of its writer in reading the work criticised. The following example of his reasoning may lead the reader to think so too:

He says: "Let us merely name some of the objections to this treatment: First. It is unnatural,—it does not harmonize with the plan of the original Artist," etc. That observation loses some of its force when we remember that the plan of the original Artist does not save them from total destruction, and that *all* we do in either system is different from the original Artist's plan.

But he has discovered this plan: "Lessening the point of contact, while enlarging *the space, already too small,* at the cervix (the second V), will give all the advantages that can be secured by any means." In the part we have italicized, he says "the space (which the original Artist fashioned) is already too small!" And we have just seen him pronouncing against any interference with the original form. But here he says the space is too small, and if changed, "will give all the advantages that can be secured by any means."

That is, at Dr. Arthur's suggestion of this plan he is opposed to it; but suggested by himself, it "will give all the advantages that can be secured by any means." For, as we understand the question, the plan he claims as his own is the only fair interpretation of Dr. Arthur's that appears in his article.

If any one is willing to rest his judgment of the system upon such a review as this, we shall say nothing further to disturb his peace.

# COLLEGE ASSOCIATIONS.

BY ELIHU R. PETTIT, D.D.S., PHILADELPHIA,

DEMONSTRATOR OF OPERATIVE DENTISTRY IN THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

If there be one feeling in the human breast, outside of our social life and relations, which is cherished more than another, it is the feeling a graduate of a collegiate institution always cherishes for his Alma Mater. Having been instructed by her how to do battle in the best manner in the peculiar sphere he has chosen for his own in life, he ever looks back with fond remembrance to the time spent within her walls. And although circumstances may arise that change the whole course of his thought and action, although he may have abandoned entirely his chosen profession, still, the progress and success of his Alma Mater are dear to him, and he will often turn aside from his usual course to take part in her celebrations. Or if, in the course of events, that *nourishing mother* shall have become of the things of the past, it is always with the tenderest feelings that he cherishes her memory, as of the good things of the earth.

Nor is it only of the institution itself, or of her corps of instructors, that such feelings are fostered. Associated with him during his pupilage were others striving for the same object, having the same end in view. How closely their hearts were bound together, only those can tell who have passed through a similar experience. They have been animated by the same hopes, or discouraged by the same fears. They have encouraged and assisted each other in climbing the difficult ladder to knowledge. Sad, indeed, was their parting, when, having completed the course of instruction, and received the reward of their labors in the degree conferred as an evidence of their preparation to enter upon the practice of their chosen profession, other duties have called them away. And this sadness is increased by the thought that there is nothing that will bring them together again in the same relationship; but settling in different and distant sections of our own country, or seeking in foreign lands the success for which they strive, bitter is the thought that they may never meet again.

But must it be so? Of late years such persons have decreed that it shall not. Hence we find that associations of the Alumni of the various collegiate institutions have been formed, and successfully continued, which bring together every year many who otherwise would probably never meet again. It was with some such feelings as these that, two years ago, the Association of the Alumni of the Pennsylvania College of Dental Surgery was formed. Started with considerable opposition, or at least with a want of support from many who should have been foremost in such an effort, and amid predictions of failure, at the first annual meeting the attendance and interest were such as to warrant a more extended effort. Hence essays were requested from some of the prominent members of the profession, Alumni of the college; notice of the second annual meeting, to be held on the first of March, 1872, was given in some of the dental journals of this city, and an invitation to be present extended to all the graduates. The result was an interesting and profitable meeting, the only drawback to which was the shortness of the time devoted to it, which was limited to one day. Several essays, thoughtful and practical, were read by some of the most distinguished members of the profession, and discussed with interest, while the reunion and supper, held at the college after the commencement exercises, afforded increased opportunity to renew former friendships, and to recall pleasant associations of college days.

We believe the time is not distant when such associations will be formed in all our colleges, and that their meetings will prove of great benefit to the Alumni, tend to the elevation of the profession, and, as a result, to the prosperity of the institutions represented.

# PROCEEDINGS OF DENTAL SOCIETIES.

## ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

(Continued from page 142.)

Prof. McQuillen fully coincided with the essayist in his objections to the use of arsenious acid in the treatment of sensitive dentine. In his experience he had found carbolic acid, chloride of zinc, tannin, and other local applications, to meet the demands in ordinary cases; but in persons possessing an exquisitely nervous organization, those who, even at the sight of an instrument, and before its contact with the tooth, are thrown into spasms, such remedies prove of no avail. In these cases he had frequently been compelled to place the patient under the influence of ether, carrying the etherization to the point of insensibility or anæsthesia, but not of unconsciousness or narcotism. With the patient in that condition, the most sensitive teeth can be thoroughly excavated without pain. In some instances, where there were objections to the use of ether, he had relied upon keen, sharp excavators, and the rapid removal of the decay. This heroic treatment, however, he was not very partial to. In this connection, attention was directed to the advantage to be derived from the employment of drills rotating rapidly, as in the Carpenter pneumatic engine and Morrison's lathe. The speed with which these instruments move renders their employment in such cases invaluable, the operation being accomplished with little or no pain in many instances, where they were exquisitely sensitive on coming in contact with an excavator. The principle is the same as that employed by Dr. B. W. Richardson, in the amputation of fingers and removal of small tumors, by means of cutting instruments revolving rapidly.

In suggesting the employment of an anæsthetic in cases of this kind, and in the presence of so many young men (students of the Philadelphia Dental College), he felt it his duty to advise them to always have a third party present, if possible a member of the family, when administering it to females.

Dr. Neall preferred the heroic treatment; he did not use arsenic for sensitive dentine.

Dr. Breen never used arsenious acid; he used creasote, and the results obtained were satisfactory.

Prof. Kingsbury remarked that he had used a variety of remedies to obtund the exalted sensibility of dentine, none of which seemed to act efficiently in all cases. Chloride of zinc acted very quickly in most cases, but the pain produced by its application was a great objection to its use. That it would in almost all cases obtund the sensibility there could be no doubt, and he had reason to believe, from some cases that had come to his knowledge, that sometimes the pulp has been completely devitalized by its action through the dentinal tubuli. He had used oil of peppermint, spirits of camphor, and a saturated tincture of aconite with advantage in many cases.

In a few instances he had administered from one-sixteenth to one-quarter of a grain of sulphate of morphia, which produced a decided sedative effect upon the entire nervous system of the patient. Great care should be exercised in its administration, and more than one-fourth of a grain should not be given in any case at one sitting. Chloroform and ether as a topical application will prove beneficial in some cases. Occasionally he has found it necessary to administer it to an extent to induce a partial anæsthetic condition, but had refused to accede to the wishes of the patient to carry it to the extent of complete narcosis, and only in extreme cases would he consider it advisable to give it to any extent to secure immunity from pain in filling teeth.

By the use of keen excavators, combined with delicate and rapid cuts in a direction as nearly as possible at a right angle transversely to the dentinal tubuli, he obtained more satisfactory results both to his patients and himself than by applications to obtund the sensitive dentine. A plain statement of the facts to the patient, together with kind words of encouragement, will often supersede all other remedies.

One of the great desiderata in our dental pharmacopœia is an agent that can be applied topically, and that will quickly and invariably obtund sensitive dentine without injury to the pulp.

Dr. Eisenbrey. Arsenious acid is an excellent medicament when used in the proper direction. But the results did not justify one in using it for sensitive dentine. He depended upon an excavator well tempered and sharp.

Dr. Chandler had used the spray for sensitive dentine with gratifying results. For two years he had used chromic acid; used it very cautiously; had not seen any bad effects from its use, and found it of great service.

Prof. Stellwagen, in treating sensitive dentine, thought it well to diagnose whether the pain resulted from general or local hyperæsthesia, and treat accordingly.

Where so many remedies are recommended for any one disease, it is pretty conclusive evidence that none are sufficiently effective to be universally reliable. Without enumerating all the remedies advised, he would simply call attention to the fact that the essence of peppermint had been so long used by the Chinese as a local anæsthetic that he had been induced to try it, and more recently he was experimenting with the bichloride of methylene and nitrite of amyl; could not yet report upon the results. The local effect of Richardson's spray apparatus was good, and he thought ether better than rhigolene, but there was great difficulty in using them in some cavities. The new machines for rapid cutting, the burring-engines, etc., were not to be forgotten among the local applications. He, however, relied mainly upon the inhalation of small quantities of ether. Whenever this agent could be used with safety, it was almost certain to afford relief. Hydrate of chloral had been used recklessly, and he wondered that so few accidents from it had been reported. Its use hypodermically was forbidden long ago; but he knew from experiments upon himself that it was more likely to produce ulcers upon the lower extremities than the upper, on account of the gravitation of the blood to the parts.

Prof. McQuillen had employed chloral hydrate in a few instances. On one occasion, a lady for whom he was operating, and who suffered intensely from the excavating of sensitive dentine, desired that a hypodermic injection of the chloral should be made. This was done on the following day by her family physician, the injection being made in the leg, above the knee. The influence upon the nervous system was quite marked, the removal of the decay being accomplished without any manifestation of suffering. In other respects, however, the patient was not quite so fortunate, for the hypodermic injection was followed on the succeeding day by considerable irritation and inflammation in the limb, and it became so much swollen that it was with the greatest difficulty she could be got on board of a steamer starting for Europe. He regarded this case as very decided evidence against making hypodermic injections in the lower extremities.

Dr. Eisenbrey. Hydrate of chloral, injected in the arm over the insertion of the deltoid muscle, will not produce any deleterious effects.

The following paper, by Dr. Edwin C. Baxter, of Albany, N. Y., on a case of "Persistent Headache, the Result of Exostosis," was then read:

A patient, a lady of middle age, called for the purpose of having a cavity filled in the right superior canine, having just discovered that it needed attention by the breaking in of the distal wall; expected to have it filled at once. On examination, found the pulp dead, and an abscess established, which was discharging through a fistula between the canine and bicuspid, allowing the passage of a broach up the side of the root to its apex. The other teeth were all in good condition, except the right superior first molar and left inferior first molar, the former having lost almost all its crown, and the crown of the latter being entirely gone, leaving the two roots standing separate. During the examination the patient volunteered the information that for three years she had been under treatment for continual headache, from which she was never free half a day at a time, and which any extra excitement or over-exertion brought on so severely as to confine her to the bed for days, when she would suffer the most excruciating agony. Neither of the teeth had ever caused any trouble, with the exception of slight tenderness of the canine to pressure. The advice, based upon the general bad condition of the teeth in question, and the possibility of something occult connected with them, was the removal of the roots of the upper and lower molars, and treatment of the canine for the cure of the abscess; but, having merely contemplated the filling of a simple cavity, she desired, before submitting to the operation, the advice of her physician, who subsequently called with her, and, upon being shown the condition of the teeth and abscess, coincided with the advice given. The operation was commenced by the removal of the roots of the lower molar, which, being entirely separate at the margin of the gum, were expected to be removed one at a time; but in the attempt to remove the anterior root, both came away together, revealing such a marked case of exostosis as the joining of the ends of the two roots in one large mass. Considerable difficulty was experienced in removing the roots of the superior molar, the buccal roots being joined the same as the lower molar roots, bringing away that portion of the alveolus embraced by them, and the palatine root also showing considerable enlargement. This development of exostosis justified the assurance of both patient and physician that the cause of her suffering had been brought to light.

Two days subsequent the patient called for treatment of the canine for the cure of the abscess, and stated that she had suffered no pain since the extraction. In treating the canine, creasote was forced through the root until the fistula was well cauterized; the pulp cavity filled with cotton saturated with creasote; covered with gutta-percha, and left for one week, at the end of which she called, with the abscess apparently cured, and no pain. Removed the filling and refilled as before, making an appointment for the next week, when the patient returned, with the abscess re-established and in full operation, and suffering, though much less severe pains than formerly. Repeated the forcing of creasote through the fistula, filled the pulp cavity and crown as before, and left for another week, when the fistula was found closed and the patient entirely free from pain. The next week the tooth was filled permanently; and, as over four months have now elapsed, the operation may be considered a success.

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## BROOKLYN DENTAL SOCIETY—REPORT OF DISCUSSIONS.

### Management of the Sixth Year Molars.

**Dr. Mills.** To be successful in general practice with the management of the sixth year molars, requires more than mechanical skill. Some teeth yield to *ordinary* ability, while others require our *best* service and most patient efforts. The circumstances under which our attention is called to these teeth are so varied, that it would seem necessary to classify them before we could point out the course to pursue. The *why* and the *when* are the questions to be settled in each case. Some teeth, with mechanical ability alone, would be saved to the patient, until their services were no longer demanded, while with others it would absolutely fail.

What I have to say will be directed to what would be termed bad cases; such as teeth diminished in their vital forces, robbing them of a perfect type, and thus weakening their ability to resist a foreign foe, causing extended decay, exposed and devitalized pulps, periostitis, and alveolar abscess.

In these cases, decay is often of an extended nature, but of a superficial character. This I would treat by its reduction, and polishing the surface smooth, by such means as are familiar to all of us.

There will be ever in these cases some portions of the tooth decay that has reached such a depth as will require filling, and with young patients I should meet this requirement with such a material as would expedite the operation and secure the end desired, until circumstances would be more favorable for an operation of greater permanency. Cement plombe is my *specific* in such cases at the present time.

The term extended decay, used in the second case, would include those cases where the destruction of the dentine was largely involved, and often not much of the enamel. In such cases I would reduce the margins enough to secure strength sufficient to meet the demands; then I would remove that portion of the dentine which was really detached by decomposition, and fill with *cement plombe,* and defer filling them permanently, if at the time the circumstances were such as not to warrant the insertion of fillings of a more durable nature.

In cases of teeth with exposed pulps, I would first endeavor to secure a normal condition of the pulp as far as possible by medical treatment, using aconite, creasote, thymol, or wine of opium, as the indications would dictate, always seeking to secure the life of the pulp whenever that end was possible of attainment. (Should it die, I would resort to such treatment as the generality of cases demand where we find them already devitalized.) For capping the exposed pulp, I would use cement plombe, as I see no benefit in resorting to any other plastic filling, while this meets all the demands, and has the additional advantage of being more durable than all others.

Teeth with periostitis can be treated on the same principles as others. In these cases the first thing to do is to relieve the pain by tension, produced by tying a string around the neck of the tooth, and pulling upon it (carefully) enough to ease the severe pain. Then proceed to open the tooth with a fine, sharp drill, and do not stop short of going through the foramen and breaking up the latent abscess; and to succeed in this, live tissue must be reached and the blood started. If much pain is produced by this operation, the injection of the wine of opium will reduce it, after removing any débris there may be. The next step will be to disinfect the tooth, and then proceed to fill with such material as will best suit the case. I would use for the pulp canals cement plombe and cotton, and secure the crown with the material that my judgment would dictate. This treatment for periostitis, if faithfully and understandingly followed, cannot fail of success.

Dr. Shannon. I highly commend Dr. Mills for his determined energy and perseverance in his efforts to save the sixth year molars, under any and all circumstances, but in my practice I would proceed in an entirely different way, and although I would not wage an indiscriminate warfare upon the teeth in question, yet I would extract more frequently than preserve them, for the following reasons: first, they are usually the worst made, and therefore the weakest teeth in the mouth, especially in Americans, owing to the miserable manner in which our babies are fed, as these teeth commence to calcify during that period when sucking-bottle and pap-cup are so generally used, instead of the means provided by nature for the sustenance of the infants; second, their impingement jeopardizes the second bicuspids and second molars; and third, if removed, the other teeth can be kept cleaner on the proximal surfaces, and the impingement, so frequent where they are retained, relieved throughout the arch, and the easy passage of the floss-silk or toothpick is secured. We all know how hard it is to get our younger patients to clean their teeth *thoroughly*, unless it is done *easily*, and not always then.

Another reason is, that by removing them in time, opportunity is given for fuller development and the more proper eruption of the dentes sapientiæ, which often give so much trouble, and so imperfectly comes forward when the sixth year molars are retained.

Facial contour should be considered. Where the broad Teutonic cast is presented, the removal of these teeth (if their condition suggest it) can take place without hesitation. Should the opposite to this, the narrow face, especially the "peaked" lower jaw, present, every effort should be made to preserve *all the teeth*, and so counteract the "hatchet" face tendency as much as possible. I cannot agree with some of my brother practitioners, that their removal always is desirable; nor with others, that their retention must always be secured, but that a thoughtful, judicious exercise of our professional skill, regulated by the circumstances of each particular case, will secure better results than a persistent, not to say obstinate, determination to always *save* or *sacrifice* (as the case may be).

I would finally remark, that if it is decided to remove them, it should be done just before the eruption of the twelfth year molar; for if postponed until after the eruption of the latter they, in many instances, will fall over gradually into the cavity, and present the posterior cusps for occlusion with the upper teeth, making a deformed jaw and exceedingly faulty articulation.

Dr. Atkinson. It matters little how well we may be acquainted with the laws of development in their abstract nature, for we must of necessity not only be cognizant of these, but have absolute control of each case presented to us for treatment.

The greatest obstacle in the way of getting complete control of our cases in time to secure the best results, is the almost universal misapprehension of parents and guardians that the sixth year molar either belongs to the deciduous set, or is so poorly formed, as a rule, as to render useless all attempt to save it permanently. Were we as a profession in the possession of the knowledge requisite to constitute us a professional body, there would be less dispute as to the anatomy, physiology, or therapeutics of the sixth year molar. Were we in real earnest to do the best possible in each individual case, irrespective of the time spent, labor expended, or money received, there would be less cause of difference, and next to no failure. Too many of us allow ourselves to be dictated to by patients and friends, and too many are unwilling to follow their real convictions, and act accordingly, for fear of losing favor or a case. In one word, next to nobody in the profession does his work of examination and execution with the whole heart. We must be masters of the situation, and above all interests but the interests of the patient and his well-being, to enable us to perfect the work within our knowledge and power. I am of the same mind respecting the saving of the sixth year molars as I am respecting the saving of dental pulps,—that is, that no intelligent operator can cleanly extract a sound sixth year molar under any other than necessitous conditions, first among which conditions I would name the previous loss of one or more of these teeth; the loss of one, as a rule, involving the necessity of the loss of all four, to prevent all irregularity of occlusion and loss of masticating power. That which would be our highest practice, if we were applied to in time, is rendered already nugatory, in the majority of new mouths presented to us, because ignorance, misapprehension, or neglect, had removed a tooth, destroyed its pulp, or permitted the entire crown to be wasted away by decay. But here as elsewhere we must take the cases as they present themselves, and do the best for the patient that the circumstances then present will allow.

Those who extract the sixth year molars previous to the eruption of the second or third molars, with the avowed object of gaining room and inducing more perfect development of the third molar, and thus securing a better masticatory apparatus, assume a prevision of the case to which no one is as yet entitled. If I were asked what teeth were most important in the mouth for the well-being of the patient, I should unhesitatingly choose in the order here named,—the first molar, the second molar, and the cuspid, as pre-eminently requisite for the preservation of the functions of mastication, insalivation, and vocalization; not that the loss of the bicuspids and incisive teeth do not mar vocalization more than the others, but that they are capable of replacement by artificial substitutes in a degree not approached by the molars and cuspids. In fact, the centre of masticatory force comes directly upon the first molars. *Care* and *faithfulness* are all that is necessary to secure the preservation of very frail teeth. What I mean by care and faithfulness would be called superserviceable meddling by nine in ten of the profession and patients, as now in practice and being practiced upon. There are so many dentists who are unwilling to acknowledge the presence of a cavity in a tooth, until they can stick a blunt instrument into it, or throw a cat and her kittens into a cavity, whose location is indicated by their overhanging tails, that it becomes requisite to have more than an ordinary share of backbone to do that which is really necessary, in a vast majority of the sixth year molars of the present generation. Dentists desire to make money, more than to do good, and to make it easily they cater to ignorance and bad taste, in meeting every one's mind, by doing just what, and no more than, they think they need and are willing to pay for. The great sin of extracting natural teeth under anæsthetics and inserting wretched substitutes, owes its existence to the ignorance of the people and the profession in preferring it because of its small comparative expense. I would, then, most earnestly advise every operator upon the teeth either to preserve them all, or acknowledge his inability so to do, and take or send the patient to some brother practitioner who is able thus to preserve these useful organs from destruction. Were this course adopted, a more rapid increase of the number of dentists required to do the work would be demanded and secured.

## Oral Secretions and their Effect upon the Teeth.

Dr. Shannon. Oral secretions I apprehend to mean technically the mucous and salivary fluids. If we confine the discussion to these two, then the field is limited and the subject soon exhausted; for a physiological and pathological consideration leads simply to the conviction, that if a healthy condition—a normal condition of the mouth and gums—be established, no effect, other than a proper and desirable one, is had upon the teeth, and the natural purpose is conserved, viz., lubrication in mastication, aid to deglutition, comfortable moisture of the mouth, etc. Now, we do know that it is largely and lamentably true, that this healthy or normal condition is very rarely to be met with. I have not had more than two or three cases, in as many years, where the floss-silk, tooth-brush, and water were all that were required to keep the mouth and teeth clean and healthy. The mucous secretions abnormally discharged—resulting generally from a low state of vitality, irregular habits, or dissipation—are the most troublesome to manage: they eat into and corrode the extreme surfaces of the teeth, especially the six superior front teeth and the inferior molars,—the mucus from the posterior nares and fauces, stringy and tough, collecting around the necks, and eating into them like a red-hot iron into a tallow candle. I know that starchy and pasty food—in and around these places, and held by the cheeks, fermenting and acidifying—is also largely the cause of these buccal and cervical decays; but a large amount of mucus is secreted there also: as we very often see it in large quantities collecting on the napkins held back in the mouth. No doubt we have all noticed how sensitive the teeth of such patients are, and how acutely so many of the teeth, especially the canines, are at the margins of the gums, exteriorly, when the gum has receded a little and allowed this acid fluid to remain in and along the line of union of the cementum and enamel, which, if not speedily remedied, results in extensive decay, varying from the superficial to the deep. An unhealthy mucous mouth is the worst mouth to take care of; and it takes good work to remain permanent there. The abnormal salivary secretions are neither so bad nor so troublesome. If, through long neglect, the decay has made great ravages around the alveolar borders, there is not much to do but to get ready to make a new set of teeth for the patient; but when such cases are taken in time, and a good clean condition is once secured, and the patient has tolerable decency and pride, not much difficulty is experienced in keeping the unhealthy conditions under control. This is the kind of a mouth for an operator to work on and gain a reputation for being a good one. His fillings must be thoroughly good, in order to stand the severe test to which they will be put. Extraneous or incidental secretions, resulting from neglect by decomposition of food, cause a fearful amount of destruction of tooth substance, induced as they are in the course of fermentation and decay. Acetic acid will make the phosphoric let go its base; and I am of the opinion that much of the decay of the teeth is due to the cracks and fissures in the enamel, which allow these acids to reach and penetrate the carbonates of the tooth. The acid just named is produced in the mouth by fermentation and decomposition of vegetable food, and is more destructive than any other.

Dr. Mills. Oral secretions have no ill effect upon the teeth when they are in a normal condition. Nature has so formed them that one is the counterpart of the other, and in their connection they are no longer separate, but are so intermingled that, in the complete satisfaction enjoyed in their connubial felicities, they have no other than a loving disposition toward all with which they come in contact. But in our daily practice we too often find the opposite is the case. Almost every mouth is like a neighborhood quarrel, and our mission is to throw in the *olive-branch.* The abnormal secretions must be met with such agencies as will re-establish the normal state, and then we may have some hope that the sanitary effect will be lasting. The effect of the sublingual secretions in a large proportion of cases is more or less injurious to the teeth. The deposition of lime, which is familiar to all, is very insidious in its destructive work around the necks of many teeth, often involving the loss of the entire socket, and necessarily the teeth. The abnormal mucous secretions are also very injurious to the teeth, particularly at the margins of the gums, producing cavities cylindrical in shape, and often involving both the labial and proximal surfaces. The lime can be mechanically removed, and the parts restored to a comparatively healthy condition. The cavities can be mechanically filled, and the teeth temporarily preserved. This fact stares the dental profession in the face. We need more thorough education, in order that our treatment may be more successful in meeting the demands made by these cases, and we must press the recognition of this necessity more and more upon each member of our profession until the highest standard is reached. I ask, how many have we that can intelligently fulfill all the requirements demanded by the patients we meet daily in our practice who require constitutional treatment?

Dr. Atkinson. It is next thing to impossible to speak profitably, to the apprehension of the dental profession, upon the question before us to-night, viz., "Oral Secretions and their effect upon the Teeth." The direct effect of any oral secretion, normal or abnormal, it would be difficult to determine, because the products of the glands and follicles, being different in their character and constitution, often neutralize each other, and always commingle in the oral cavity. Probably, strictly oral secretions have no other than a salutary effect upon the teeth. Cases that have been attributed to deteriorated oral secretions are more likely to prove regurgitations of the gastric secretions, normal and abnormal, and the result of the decomposition of particles of food between the teeth. What secretion is, is but partially understood; and until it is understood, it cannot be satisfactorily propounded to even those sufficiently cultured to accept or reject doctrines and statements of doctrines. The influences that affect oral secretions are too fine and occult for general appreciation, even when apprehended. All that enters into our bodies and minds to characterize us as individuals must be understood before we can determine normal and abnormal secretory activity. Secreting organs must have material to work upon within reach; hence our secretions will be favored or obstructed by many conditions,—physical, moral, and social: the character of the food we eat, the state of mind we are in, and the company we keep, have more to do with secretions, oral and general, than most men suspect. Beatific states hold a pleasing reign over secretory organs; no less, then, conditions of distress arrest or modify the act of secretion and the product of the secretory apparatus. If we fully understood the principles involved in the selection and appropriation of food, and rigidly obeyed their behest, we should then enjoy the full inheritance of a human birthright. Oral secretions are the work of the secretory tissue of the oral cavity. Unobstructed work is work *con amore*,—a work of love: this is *true work*. All true work is worship: so that soundness of secretory work may be obtained in the product of the acts of the secretory tissue, which constitutes soundness or sainthood. The proper purpose of the oral secretions is the preparation of comminuted food, so that it may be transformed into chaotified mass, fitted for appropriation of the needy territories of secretory tissue that have been wasted or worn by violence or sickness. The secretory act, by which pabulum is converted into the tissues of organs and the products of these secretory organs, is an act of combination of simple and proximate elements, dependent upon the affinities resident therein and the use they are intended to subserve in the living economy. We can go no further than this without invading the territory of disputed grounds. Logic says, whatever is not predicable of the elements of a body cannot be attributed to any mere aggregation of those elements: and as all the provable elements of the secretory tissue are reducible to thirteen simple elements, and their combinations into proteinaceous substance called proximate elements, which are alone capable of being appropriated by the needy territories of secretory tissue, we are still at a loss for the *plan* of the *process* that executes the *purpose* in living tissues.

John C. Wyman, *Reporter*.

## EASTERN OHIO DENTAL ASSOCIATION.

The second semi-annual meeting of the association convened at Alliance, Ohio, February 27th, 1872. President, Dr. J. C. Whinery.

Dr. J. M. Porter, of Massillon, read an essay on "Anæsthesia and Respiration."

Dr. J. W. Lyder, of Alliance, read an essay on "Dental Association and its Benefits," pointing to the great advance made through the influence of dental associations, and alluding to the damaging influence on the profession of those men who do not believe in association, or who attend one meeting for pecuniary motives only, in order to class themselves as members in good standing.

On motion, these views were adopted as the sentiments of the association.

Dr. Siddal described his method of producing anæsthesia, using chloroform and ether.

Dr. Whinery addressed the association on anæsthesia.

Dr. Lyder deprecated low fees for administering anæsthetics.

On motion, a cordial invitation was given to members of the medical profession present to participate in the discussion.

On the subject, "When is Extraction Indicated?" Dr. Douds, of Canton, says he always extracts the second bicuspid, in case the cuspid is crowded out of the arch, if extraction is necessary, provided the first bicuspid is sound, as from observation he thinks the first bicuspid less subject to decay.

Dr. McLain reported cases where he had successfully treated excessive deformity of the mouth from irregularity of cuspids, by extracting the first bicuspids, preferring them on account of being able to bring the cuspids in place with less disturbance, than by extracting any other tooth. If there was not sufficient room, he procured it by plates or wedging.

Dr. Porter deprecated, in strong terms, the wholesale extraction of slightly-diseased teeth and roots, claiming that, in the majority of cases, they can be restored to health by judicious treatment.

Dr. Lyder reported a case where a sound sup. lateral incisor, closing inside the arch, had received such injuries from unnatural occlusion as to cause alveolar abscess; the root, when extracted, being almost jet-black.

Dr. McLain reported a case where a lady, aged forty-five, after the extraction of the entire upper denture, erupted a molar near the mesial line about six lines posterior to the natural position of the lateral incisor; the side of the tooth presented to the mouth, crown in front; also, a bicuspid in the natural position; also, a case where one of three sisters had an entire denture extracted, and the other two, the upper dentures, all the extracted teeth being dead, not one decayed, but many of the roots badly necrosed. The mouths of all were in such a horrible condition that the patients' lives were almost a burden. The first sister had lost her hearing and become dyspeptic.

Dr. Whinery reported several cases of complicated disease of maxillary sinus treated successfully with dil. chlor. zinc and dil. carbolic acid, alternately, one case being of many years' standing.

Drs. Porter of Massillon, Whinery of Salem, and McLain of New Lisbon, were elected delegates to the American Dental Convention.

The Chair appointed as essayists for the next meeting Drs. Porter and Douds. Subjects for discussion, "The Proper Treatment and Filling of Diseased Teeth and Roots," "Dental Ethics," "Specialties in Dentistry."

The next place and time of meeting was appointed at Salem, August 29th, 1872, ten A.M. Adjourned.

D. B. McLain, *Secretary.*

## SECOND DISTRICT DENTAL SOCIETY OF NEW YORK.

The annual meeting of this society was held in Brooklyn, on Tuesday, April 9th, 1872.

After some miscellaneous business had been transacted, the election of officers was held, with the following result:

*President.*—Dr. O. E. Hill, of Brooklyn.
*Vice-President.*—Dr. T. C. Royce, of Middletown.
*Treasurer.*—Dr. H. G. Mirick, of Brooklyn.
*Recording Secretary.*—Dr. M. E. Elmendorf, of Brooklyn.
*Corresponding Secretary.*—Dr. F. W. Dolbeare, of Brooklyn.
*Librarian.*—Dr. G. A. Mills, of Brooklyn.

*Delegates to State Society.*—Dr. W. B. Hurd and Dr. W. S. Elliott.

In the course of the proceedings, a call was made upon the committee appointed by the Convention of Dentists, in December, 1871, for information in regard to the rubber suits. This call or request being approved by the society, Dr. Hill and Dr. Northrup, who were present, gave a detailed statement of the entire proceedings of the committee since their appointment; of the difficulties they had encountered; of the presentation and argument of the case in the Supreme Court, and of the hopes of success which the committee entertained.

The annual dinner was given in the evening, at which many distinguished visitors were present, and among them, Rev. Dr. Moore, of Cincinnati, Ohio.

Upon reconvening, the President elect was formally inducted into the chair, and the remaining business of the meeting transacted.

The following resolution was then offered by Dr. Marvin, and unanimously adopted, with the direction that it be offered to the several dental journals for publication:

*Resolved*, That the thanks of this society are hereby tendered to the committee appointed by the Convention of Dentists, held in New York City in December last, to prosecute the interests of the profession in the matter of the rubber patents, and also to the counsel employed by said committee, for the very thorough and able manner in which those interests were vindicated before the Supreme Court of the United States; and let the result be what it may, we hereby record our approval of their action, our thanks for their unwearied efforts, and our sympathy with them in all the difficulties and under all the adverse circumstances which they have met in the execution of their trust.

The meeting then adjourned.

M. E. Elmendorf, *Secretary.*

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At a meeting of the Brooklyn Dental Society, Monday evening, April 15th, the following action was had:

*Resolved*, That this society affirm and indorse the resolution of thanks and approbation passed at the annual meeting of the Second District Dental Society, April 9th, as to the action of the Committee on the Patent Suits and their counsel.

Jno. C. Wyman, *Secretary.*

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## THE ASSOCIATION OF THE ALUMNI OF THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The second annual meeting of this association convened in the college building, March 1st, 1872, at ten o'clock. After the reading of the minutes of the last meeting, the President, Professor Barker, delivered the annual address.

The committee appointed to consider the expediency of making this association a scientific one, reported in favor of such action, recommending also the appointment of committees on different scientific subjects, and that two days be devoted to the annual meeting of the association.

There were two sessions of the meeting held, at which essays upon the following subjects were read:

"Suggestions," by Dr. J. S. Latimer, New York.

"Treatment of Children's Teeth," by Dr. C. E. Francis, New York.

"Progressive Dentistry," by Dr. J. D. Wingate, Carbondale, Pa.

"Hereditary Transmission," by Dr. A. Lawrence, Lowell, Mass.

"Change not Progress," by Dr. C. A. Marvin, Brooklyn, N. Y.

"Manipulation of Gold Foil in Filling Teeth," by Dr. Wm. H. Trueman, Philadelphia.

"Disreputable Practice of Dentistry," by Dr. G. W. Adams, Bristol, Pa.

Some of these essays elicited interesting discussion; on account of want of time, discussion of others was necessarily omitted.

Dr. Wm. H. Trueman exhibited an instrument used thirty years ago for condensing cylinder fillings, and advocated its reintroduction. He also called attention to condensing forceps with movable beaks, invented by Dr. David Roberts, an Alumnus of this college.

The following officers were elected for the ensuing year:

*President.*—Dr. A. Lawrence, Lowell, Mass.

*Vice-President.*—Dr. E. T. Darby.

*Recording Secretary.*—Dr. E. R. Pettit.

*Corresponding Secretary.*—Dr. H. C. Register.

*Executive Committee.*—Drs. T. L. Buckingham, James Truman, and W. G. A. Bonwill, of Philadelphia; Charles Moore, of Pottstown, Pa.; and Charles S. Stockton, of Mount Holly, N. J.

The success of this, the second annual meeting of the association, was unexpectedly great, but it is impossible to do justice either to it or to the essays in this necessarily brief report. The attendance was large, and among those present it was gratifying to notice so many of the prominent members of the profession,—standard-bearers, so to speak,—some of whom had come hundreds of miles, besides voluntarily devoting their time to the preparation of interesting and practical essays. The interest of those present was unflagging, and the material presented was sufficient to have occupied at least two days in its discussion, including the regular business of the association. The opinion seemed to be general that the meeting was scarcely less interesting than those of the American Dental Association, if at all so; while it rivaled those of many of the State associations, the only drawback to it being the shortness of the time, which was limited to one day.

It is proposed that the next meeting shall continue for at least two days, which will scarcely allow sufficient time for the discussion of the subjects that may be brought before it, as it is expected that a still larger number will favor the association with essays upon both the theory and practice of our specialty. The attendance also will doubtless be much greater as the interest in the association increases, and the Alumni become better acquainted with its objects.

Elihu R. Pettit, *Rec. Secretary*,
1104 Arch Street, Philadelphia.

## PENNSYLVANIA STATE DENTAL SOCIETY.

The fourth annual meeting of the Pennsylvania State Dental Society will be held at the city of Erie on the first Tuesday of June next, commencing at ten o'clock, *and continuing three days.*

Ample arrangements for the accommodation of the society will be made by the Executive Committee, of which Dr. W. E. Magill, of Erie, is Chairman.

Members of the society, and members of the profession in general, are invited to be present, as the exercises are expected to be unusually interesting and instructive.

Excursion tickets will be issued by the Philadelphia and Erie and the Pittsburg and Erie Railroad Companies, orders for which can be obtained by inclosing stamp to the undersigned.

### Subjects of Essays for Discussion.

"Discolored Teeth and their Treatment," by R. Huey, D.D.S., Philadelphia.

"Absorption of Alveolar Abcesses," by G. W. Neidich, D.D.S., Carlisle.

"Operative Dentistry," by Dr. G. B. McDonneld, Conneautville.

"Dental Pathology," by Dr. J. G. Moore, Lancaster.

"Mechanical Dentistry," by Charles J. Essig, D.D.S., Philadelphia.

"Preservation of Children's Teeth," by W. E. Magill, Erie.

"Dental Ethics," by Dr. M. E. Gillespie, Pittsburg.

S. Welchens, *Corresponding Secretary*,
Lancaster, Pa.

## NEW ORLEANS COLLEGE OF DENTAL SURGERY.

The sixth annual commencement of the New Orleans College of Dental Surgery was held at the college hall, New Orleans, Thursday evening, March 14th, 1872.

The salutatory address was delivered by Prof. S. P. Cutler, M.D. The valedictory by R. E. Bullington, D.D.S.

The number of matriculates for the session was twenty-seven.

The degree of D.D.S. was conferred upon the following members of the graduating class by Prof. James S. Knapp, D.D.S., Dean:

| | | | |
|---|---|---|---|
| R. E. Bullington | Mississippi. | E. E. Souchon | Lousiana. |
| N. N. Hayes | Tennessee. | F. Tircuit | Lousiana. |
| A. L. Cooke | Texas. | P. A. Remy | Lousiana. |
| R. J. Miller | Mississippi. | M. Viet | Lousiana. |
| J. N. Tircuit | Lousiana. | T. J. Wall | Georgia. |
| J. E. Gullette | Alabama. | | |

## OHIO COLLEGE OF DENTAL SURGERY.

THE annual commencement exercises of the Ohio College of Dental Surgery were held on Wednesday evening, March 6th, 1872, in the hall of the college, Cincinnati, Ohio.

The degree of Doctor of Dental Surgery was conferred upon the following persons:

| NAMES. | RESIDENCES. | NAMES. | RESIDENCES. |
|---|---|---|---|
| Mrs. Marie Grubert | Berlin, Prussia. | F. C. Runyan | Ohio. |
| B. F. Eager | Mississippi. | E. B. Fairchild | Kentucky. |
| C. Shaull | Ohio. | J. E. Stowers | Kentucky. |
| Henry Shelley | Ohio. | H. A. Wernett | Ohio. |
| A. B. Harriman | Indiana. | J. P. Morris | Mississippi. |
| J. H. Warner | Ohio. | J. O. Keller | Ohio. |

The honorary degree was conferred by the trustees upon the following:

| | | | |
|---|---|---|---|
| R. Corson | Ohio. | J. A. Rousey | Ohio. |
| W. G. Cummins | Michigan. | James Leslie | Ohio. |

## THE ILLINOIS STATE DENTAL SOCIETY.

THIS society will meet in Chicago, the second Tuesday in May (14th), and not on the 10th, as has been incorrectly stated.

All practicing dentists are cordially invited.

O. WILLSON.

# EDITORIAL.

## OBSERVE, REFLECT, COMPARE, RECORD.

EVEN a casual reader of any medical, dental, or scientific periodical cannot fail to be struck with the evident fact that many of its contributors reverse the order of the processes above named,—recording what they *see* without observation, reflection, or comparison. Mere seeing is not observing, any more than hearing is understanding. Observation is seeing for a purpose, regarding attentively, watching closely, with a view of making use of the observations.

What strange experiences, so called, have been recorded because of superficial observation; what fallacious inferences have been drawn;

what fatal errors committed! But even when the perceptive faculties have been carefully employed; when observation has been thorough; still, how far from the truth have been the deductions made, because the observation has not been followed by due reflection,—earnest, persistent cogitation upon that previously observed! Again, when reflection had followed observation, what discordant theories have been propounded by different observers, because their speculations have been based upon a single fact, without comparison with other facts! How different the result, if their basis had been the correlation of a number of thoroughly-established facts! Comparison of any fact with other facts is necessary to give it value. Its importance as knowledge can only be estimated by its relation. For want of intelligent comparison, exceptions have been received as though they were general conditions, and systems and practice have been based upon an idiosyncrasy,—deductions being made therefrom more worthless than the original facts on which they were founded, because still further from the truth. Many facts which at first sight appear to admit of a certain explanation, a closer observation, reflection, and comparison will resolve into quite an opposite classification. It is the combination of observation, reflection, and comparison which alone can enable even an intelligent mind to record that which will be of value to other minds; and even if a wrong theory be arrived at, it is useful, because it enables us to classify and compare facts, and every error thus detected becomes a torch to light us in the search for the true explanation.

Many truths are arrived at only by exclusion. The student must be willing to make the theory accommodate the facts, and not make the facts bend to the theory. He must be willing to receive with an impartial mind testimony at variance with his own observations, and be always ready to listen to deductions which seem to conflict with his own experience.

It would be ridiculous, if it were not pitiable, to see the assurance with which some record what they have seen, not observed, the evidence being found in the very recital that seeing has not been followed by reflection, and that on an isolated phenomenon they are ready to announce a theory to which they commit themselves, and expect everybody else to follow their example.

The worst feature in the case is, that such men not only become intolerant, but actually oblivious to the force of objections, if not indeed incapacitated for observation in that direction, by reason of the subjective having become stronger than the objective; so that seeing, they see not; and hearing, they hear not

No man is fit to teach another until his desire to arrive at the truth is stronger than his wish to support a theory.

In all pursuits, the trouble is that the best minds, who have observed attentively, reflected profoundly, and compared diligently, arriving at conclusions satisfactory to themselves and valuable to others, if known, fail to record the results of their mental processes and experiences, leaving the field to be occupied to a great extent by those who are ready to record without having passed through the previous training which fits them to impart instruction.

## THE BOGUS DIPLOMA TRAFFIC.

The Legislature of Pennsylvania have passed a bill annulling the charters of the Eclectic College of Medicine (Dr. John Buchanan, Dean) and the Philadelphia University of Medicine and Surgery (Dr. William Paine, Dean), located in Philadelphia. The Committee appointed to investigate the facts concerning the alleged corrupt issuing of diplomas, reported a disgraceful traffic in degrees to those who were willing to pay for them, without any reference to their qualifications. The fact was clearly established that these institutions had abused the trust confided to them, and their existence as incorporated medical institutions was a disgrace to the medical profession and injurious to the interests of society. The Committee therefore recommended the passage of a law repealing all former laws incorporating said institutions, and the legislature promptly passed a bill to that effect.

## THE RUBBER QUESTION.

Several communications and reports of proceedings of societies in relation to the rubber question have been received, but the case having been before the Supreme Court before their reception, the publication of them could answer no good purpose, and they have accordingly been laid aside.

## DENTISTRY IN HOSPITALS.

The trustees of the Massachusetts General Hospital, at a meeting held March 1st, voted to establish the office of "Dentist of the Hospital," and adopted rules in relation thereto. At the same meeting, Charles Wilson, D.M.D., was appointed to fill the position. The daily attendance at this department has increased so rapidly that several thousand patients are now treated in the course of the year.

## CLINICS OF THE ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

During May and June, the Clinics of this society will be held at four o'clock on the first and third Wednesday of each month, in the Dispensary of the Philadelphia Dental College.

They are open to the members of the dental profession and students generally, who are cordially invited to attend.

# BIBLIOGRAPHICAL.

Diagrams of the Nerves of the Human Body. By William Henry Flower. Edited, with Additions, by William W. Keen, M.D. Philadelphia: Turner Hamilton, 1872.

This is a convenient and cheap edition of Flower's valuable work, admirably adapted both for the student and practitioner.

In six diagrams we have presented the principal nerves of the body, with their origin, divisions, connections, and distribution to the cutaneous surface and to the muscles. The arrangement is such that one can at a glance refresh his memory in reference to any particular nerve. These plates should be in the library of every dentist.

# OBITUARY.

## DR. ELISHA BAKER.

At a meeting of the dental profession, convened on Saturday afternoon, March 9th, 1872, at the residence of Dr. J. G. Ambler, New York, relative to the death of Elisha Baker, M.D. (which took place the day previous), Dr. F. H. Clark was called to the chair, and Dr. Charles Merritt elected secretary. Dr. Ambler explained the objects of the call, viz., to take some action as a body regarding the death of Dr. Baker. After a very handsome tribute paid to his memory by those present, resolutions expressive of the sense of the profession were passed, and it was also resolved that the heartfelt sympathies of the profession be tendered the family of the deceased, and that they would manifest their affection and appreciation of his many virtues by attending his funeral.

## ROYAL W. VARNEY, M.D.

"Died, at Savannah, Georgia, on Friday, April 12th, 1872, Royal W. Varney, M.D."

Such was the brief announcement in the New York dailies of the 14th ultimo. Few men of our profession in this country were ignorant of the great and wonderful excellence of Dr. Varney's operations. His attainments in everything relating to dentistry were very considerable, but in the matter of filling teeth he had no equal. The exquisite taste and skill of the artist were his, and the influence of his unrivaled operations has done much to raise the ideal of our profession.

A warm and true friend, modest to a fault, inflexible in his integrity he had a host of friends, who will long mourn his untimely death.

J. S. L.

# PERISCOPE.

## SELECTIONS AND ABSTRACTS FROM DENTAL AND MEDICAL JOURNALS.

Filling Teeth.— * * * Of the materials in use for filling teeth, it will scarcely be questioned, by any here present, that gold stands pre-eminently at the head ; and, save for temporary or test fillings, little else should be used. Oxychloride of zinc, as a capping for exposed nerves and for filling the inner portion of very large cavities, is excellent; but as a filling for masticating purposes, I believe it is considered a failure: the secretions found in most mouths acting upon it, and little by little it is washed away. Hill's stopping or rubber has its place; and when put into a tooth where it is required to play no part in masticating, it makes a filling that will preserve a tooth for a long time. Of that dark-visaged imp Amalgam, which finds its way into so many mouths when so few use it, what shall I say? should it ever be used or not? That it has and is saving some teeth, we must all admit; but in the manner in which it is generally used, I doubt not it has caused the loss of thousands more than it ever saved. That in the hands of a good and careful operator, who will give the requisite time to the preparation of the cavity, and the finishing and burnishing down the edges of the filling, which is an after-operation, and which as a rule is never done at all, I doubt not fillings can be made which will save the teeth for a time and prove of service; but the blackened appearance which it almost always assumes and imparts to the tooth, renders it wholly unfit as a filling in the front portion of the mouth, and exceedingly objectionable anywhere. One great objection to amalgam is, that the fillings made with it are usually made at a price that would not one-half pay a good operator for properly preparing the cavity for any kind of a filling. If the proper fee was charged for making as good amalgam fillings as can be made, we would not be often asked to use it, for the patient would almost invariably be willing to pay the additional price and have the tooth filled with gold. I have never seen very many good and well-finished amalgam fillings. The best, or among the best, I ever saw, were put in under protest by that excellent operator, our present worthy president. They were large contour fillings on the molars, beautifully formed and nicely finished, look well, and are doing good service to-day. But for these fillings he received a price for which many of us put in quite large gold fillings.—*Dr. C. R. Taft, Dental Register.*

Filling Teeth.—The anterior proximal surface of the right under second molar is decayed, and the dentos above it being weak, is cut away, and a compound cavity is formed, with a slot running back to a star-shaped plug in the centre of the crown. While preparing this cavity, I find the posterior proximal surface of the first molar decayed near the gum, leaving a good thick roof of dentos, to be seen only by the aid of a small mirror. It could more easily be plugged by cutting through the surface of the crown and making a compound cavity of it. In fact, that is the only way in which it can be plugged with the aid of the mallet. But as the dentos roofing the cavity is good and *strong*, I dislike to increase the risk of decay, or weaken the tooth, by cutting through the roof. I shall, therefore, prepare this as a simple cavity, having plenty of room to work in, having prepared the compound cavity first in the tooth adjoining.

Of course the anterior cavity must be plugged first, which I do with *hand* pressure. First placing in the cavity a large piece of sponge gold, which will fill it before compression, I proceed to pack it thoroughly and carefully in every part. Now I can use Number 10 adhesive foil in strips an eighth of an inch wide, which will easily adhere to the sponge gold. Great care, however, must be used to weld this foil to the sponge gold. To make sure of this, I weld only single thicknesses of foil until I get two or three layers consolidated. Then I proceed until the cavity is filled. After slightly smoothing the surface of the plug, I proceed to plug the opposite cavity. If I had plugged the latter first, I would then have had no alternative but to have *unroofed* the anterior cavity before plugging.—*Dr. Henry S. Chase, in Mo. Dental Journal.*

A RAPID MODE OF PLUGGING WITH HEAVY GOLD FOIL.—Let us suppose we have a first or second lower molar decayed down to a level with, or below the level of, the gum upon the distal or mesial surface, with part of the buccal or lingual, or both, walls gone, or so far gone as to render it necessary to file it away, the cavity being prepared with or without undercuts, and supposing the tooth decayed below the level of the gum, with a small portion projecting into the margin of the cavity, it becomes necessary to remove it, which may be done with little or no pain to the patient by means of a heated instrument. This has the advantage of lessening the chance of any moisture getting into the cavity, and at the same time arrests all tendency to bleeding; and as I propose to do without wood wedges, rubber dam, etc., and complete the operation in something like half an hour, it becomes an important element. The cavity being prepared, a napkin pressed down tight upon the ducts and held in that position by the tongue-holder, the patient directed to breathe through the nose and compelled to comply, the fauces being blocked up with a napkin, the head thrown a little to the right or left, several folds of thin non-adhesive gold foil having been previously folded of a suitable size, as much heavy adhesive foil cut into single pieces to suit the case, which will probably be very short strips, a little longer than the depth of the cavity, and a little narrower at the end which is intended to rest upon the floor of the cavity; lay the folds of non-adhesive foil upon the floor, projecting well out, and lying upon the cauterized portion of the gum, and, if necessary, hold there with an instrument in the left hand. Take the heavy foil piece by piece, place them in the cavity, the narrow end resting upon the floor, the other projecting out; fill up the whole space in this way, so that when no more can be got in, it has the same order and appearance as the leaves of a rosebud just about to burst; go well over it, and thrust an instrument into every available point, and fill up the spaces with more foil. Should there be any difficulty in getting in the last piece, a piece of gold wire may be forced in.

With a flat-bladed, serrated instrument, work all round the edge,—not the extreme edge of the cavity between the gold and tooth-bone—that would raise the whole plug from its bed—but a line or so from the extreme margin, with the force directed towards the edge. With a large, deep-cut, serrated, pointed instrument and the mallet, work all over the surface; next with one not so deeply cut; and lastly, with a perfectly plain instrument and the mallet, rivet the plug in, stone, and burnish. Should time and circumstances render it desirable to build out the contour of the tooth, there will be an excellent foundation to build as high as may be required, but in this case it would be better to apply the rubber dam.—*Dr. R. F. H. King, in Brit. Journal Dental Science.*

THE CASE BOOK.—What is the greatest present lack of our profession, if it be not a more accurate observation and a more careful examination? We have colleges and journals which are fully equal to the demands of the science. What we want in this relation is a contribution to the one of good minds, and to the other of good matter,—facts, not mistaken observations.

We have State dental societies, and National dental associations, most necessary aids to progress, I declare; but still, only aids in proportion as they bring together men of accurate observation and of accumulated observation. Otherwise these meetings must amount to little more than that which results in a vocal contest between neighboring chanticleers,—"A dissipation of strength in a trial of wind."

Discernment of things as they are—not as they appear to be—is evidently the first step and only method of advance in the attainment of knowledge. But it is not the only step. In the domain of facts there are many so palpable as to present themselves to the eye of the most careless observer. Others are perceived only by the closest scrutiny. And there are still others which are reached by way of induction, from the observation and comparison of things already ascertained to be facts, and by the most exhaustive proof. How great and important is the proportion of these last in the volume of medical science! How have we discovered valuable methods of treatment of disease? Certainly not by the most careful observation of the conditions in any one case, following the administration of a drug or the performance of an operation; but by a judicious comparison of these closely-observed after-conditions in a great number of cases.

Here one may rely upon the memory, if he would be careless, or if he would profit little by his experience. But so complicated will be the series of observations in any one class of cases, that he must record them, if he would bring out a complete view of each case in order to a close comparison. Otherwise many important facts are obscured or lost, the mental vision of the whole is contracted, and the conclusions are inaccurate.—*Dr. N. M. Burkholder, in Am. Jour. of Dental Science.*

PECULIARITIES OF SALIVARY CALCULUS.—Dr. J. H. McQuillen directed attention to the deposition of tartar or salivary calculus, in large or small quantities, around the necks of the teeth, the accumulation being most extensive on the teeth in the immediate neighborhood of the salivary ducts Writers had divided it into different varieties,—hard and soft, white, yellow, brown, and black. The differences, however, were simply due to whether it was a recent or an old deposit, and the absence or admixture of coloring-matter. The inorganic constituents were mainly phosphates and carbonate of lime and magnesia, combined with mucous, salivine, and animal matter. Of its origin—every article of food taken into the mouth, vegetable or animal, contains certain proportions of the salts of lime, magnesia, potassa, soda, etc.; and these can be found in the blood, being there mainly for nutrition of the bones and teeth. An illustration of this is made markedly manifest in the repair of bones and the rapidity with which the provisional callus is formed,—uniting the fractured ends of a long bone like the humerus or femur so that splints can be dispensed with in from six to eight weeks. In the ordinary nutrition of the bones and teeth the excess of these salts present in the blood is removed from the system through the various secretions. Occasionally, owing to their becoming insoluble, they are arrested in their passage through the different channels, and accumulations take place at certain points; thus, biliary calculi are found in the gall-bladder and the ducts connected with it, urinary calculi in the kidneys and bladder, chalk-stones form in the joints, and calcareous accumulations occur in the brain.

A large proportion of the salts passes through the salivary glands, and is deposited around the teeth. It is fair to infer, therefore, that salivary calculus originates from this source. It has, however, been suggested by some that, like the coral islands and chalk cliffs, it has its origin in infusoria. Recently, on making some examination of the salivary calculus and decay removed from teeth, Dr. McQ. had been interested in the movements of a number of microscopical objects. In consulting the various works in his possession, he had been somewhat surprised to find that no reference was made to this matter either in the Micrographic Dictionary, Quekett, Carpenter, Hogg, or Gosse. The only exception to this was a paper by Schrott, of Mühlhausen, Germany, translated by Dr. Adolf Petermann in the DENTAL COSMOS, vols. x. and xi., in which he describes a variety of vegetable and animal parasites observed by him in the saliva. Dr. J. G. Richardson, in his "Handbook of Medical Microscopy," also touches upon the subject. In his own observations he had invariably found, on placing recently-deposited tartar under the microscope, myriads of objects moving about in the saliva in the most rapid manner; these were of various forms bearing resemblance to the amœbæ, monads, vibriones, and spirilla, the latter being the least numerous. In certain portions of the field, where there were small patches of tartar, those that resemble the vibriones could be found entangled and projecting from them, and writhing as if they were endeavoring to escape from their position. In other patches, from which they had escaped, there was a honeycombed appearance somewhat like that found in brain-coral. He was by no means disposed to assume that the presence of these beings in the calculus was due to the fact that they were engaged in its formation, as they might have become imbedded in it.

In the decay removed from the teeth he had found a number of the so-called denticolæ; these in their appearance resembled the vibriones already referred to. The decay of teeth had been attributed by some to the presence and action of these beings; and while he was not prepared to deny that this was the case, as his opportunity for investigation had not been sufficiently extended to warrant him to express an opinion, it was reasonable to infer that they may have worked their way in after the teeth had become decayed.—*Proceedings Biog. and Mic. Section Acad. Nat. Sci., Phila. Med. Times.*

A PECULIAR CASE OF CLOSURE OF THE JAWS.—Alexander D., aged twenty-one, a minor, applied to me for advice on February 1st, 1871. He states that when he was about six years old he had ulcerated gums on the left side, and a bandage that was placed around his head caused them and his cheek to grow together. He has never since been able to open his mouth more than a quarter of an inch. He has worked at his trade at intervals, but was often unable to do so from weakness, consequent upon taking little solid food. Upon examination, I found what he said to be correct, the parts being firmly adherent, and the jaws almost closed. The temporo-maxillary articulation was not affected, which is somewhat singular, considering the small amount of movement that had taken place in it. I placed him under the influence of chloroform, and divided the rigid band of tissue, which gave him temporary relief; cicatrization, however, fixing it more firmly than before. The same operation was subsequently performed by myself and several other surgeons to whom he applied, with the same unfortunate result.

At the commencement of July, the patient again presented himself, being very anxious to be cured; and in the mean time, having given the case some consideration, it occurred to me that I might meet with more success if I fixed his mouth open during the healing process. I accordingly administered chloroform to him, and, having cut through the cicatrix, I placed between his teeth a piece of wood about an inch thick. This he allowed to remain about twenty-four hours; but the pain from it was so severe that he removed it himself. He subsequently kept a piece in during the night and at intervals during the day.

On July 22d he returned to his work, and has followed his employment ever since.

Feb 20th, 1872.—He can now open his mouth at least an inch, and has increased in weight about twenty pounds. To show the complete success of the operation, I may say that I have since removed the lower wisdom tooth on the affected side.

I have purposely waited before publishing the case, to see that he had no recurrence of the symptoms.—*J. E. Brooks, M.R.C.S., Lancet.*

ON THE PRODUCTION OF ARTICULATE SOUND.—A very interesting research has been conducted recently by Mr. Oakley Coles, the well-known surgeon-dentist, whose treatise on the "Treatment of Deformities of the Mouth" we have had occasion to notice as one of great ability and honesty. Mr. Coles has studied by a simple but effective method, described in another column, the positions taken up by the tongue and accessory organs of speech, and the portions of the palatine vault to which it is applied in the formation of each of the alphabetical sounds. After verifying the observations, he has produced a series of illustrated diagrams, which have not only a physiological interest, but are capable of important application to the improvement of imperfect articulation, and to the mechanical instruction of deaf-mutes in the art of framing sounds. The short account which we publish explains the nature and form of the results of the research, which will be more fully seen in a completely illustrated monograph now in the press. Meantime we direct the attention to it of surgeons who have had to treat defects of articulation in connection with palatine irregularities, and of the instructors of deaf-mutes.—*Brit. Med. Journal.*

COEXISTENCE OF CONGENITAL DEFECT OF BRAIN WITH PECULIARITY OF TEETH AND PALATE.—In the *Medical Times and Gazette* for March 22d, 1862, appears a lecture by Professor Laycock on the coexistence of weakness or defective organization of the brain, with certain peculiarities of formation of the face, and especially of the parts answering to the "ribs" of the cranial vertebræ. For instance, congenital defect of brain and tendency to tubercular or other tissue-degeneration are so often associated with a defective and receding chin that artists and novelists, when they wish to describe a person of unusual strength of character, are sure to give him a well-developed square-cut chin. An upper jaw contracted from side to side, with a very narrow and highly arched palate; the "rabbit-jaws," with upper teeth projecting so that they cannot be covered by the lips; peglike deformity of the upper lateral incisors; imperfect development of the upper lip, going so far as harelip and cleft palate; and noses, either snubbed and turned up, showing the cavities of the nostrils, or preternaturally big and sausage-like, as in the Aztecs,—are all familiar examples.—*Medical Times and Gazette.*

THE USES OF THE UVULA.—The first office of the uvula is, doubtless, to act as a sentinel to the glottis. It is probably also an accessory to the tongue in mastication, to which it acts with the rest of the velum as a valve, preventing the escape of particles of food into the pharynx until the chewing process is more or less complete; and, notably during the free flow of saliva soon after eating, it seems to act as a flood-gate to prevent its discharge from the mouth until a sufficient quantity has accumulated to necessitate an act of deglutition. This may be easily demonstrated by anybody who will take the trouble to look into his mouth (or rather into a mirror) shortly after partaking of a meal, when, as the saliva collects, the point of the uvula will be seen to be brought into instant apposition with the channel at the base of the tongue, forming a well of saliva, into which the uvula dips, mopping up the fluid, and flicking it against the pillars of the velum, tonsils, palate, etc.; hence it would seem to act as a lubricator, distributing moisture to the surrounding parts. It also acts in leading and clearing mucus, etc. from the vicinity of the glottis on to the tongue during hawking, coughing, and spitting.

In inflammatory sore-throat, to which I have been somewhat of a martyr, my most distressing symptom, frequent painful attempts at deglutition, was due to an œdematous and pendulous uvula, giving (as I supposed) false signals to the epiglottis.—*Dr. Thos. Paton, Lancet.*

THE USES OF THE UVULA.—In your journal, Dr. Garrett, about twelve months ago, laudably endeavored by careful investigation to arrive at the proper uses of the uvula. After having allowed sufficient time for discussion, the matter was closed without any very satisfactory result.

Now that the consideration of the question has been reopened by Sir G. Duncan Gibb, Bart., and handled with evident care and ability, I venture, with all due deference to the views of others, to make the following remarks which I have long held upon this apparently difficult subject.

In its quiescent state, the uvula is, I believe, acknowledged by most authorities to rest upon the base of the tongue; and it has often occurred to me that its use, when so placed, is to act as a conductor or guide to the liquid matters secreted within the posterior nares, and thereby to prevent the glottis from being taken by surprise by a sudden deluge, or constant and irregular leakage, from the posterior nasal surfaces. When the uvula is so resting on the base of the tongue, the velum palati hangs loose, and acts as a curtain of separation between the buccal cavity and pharynx. In this state of repose it acts as a guide or drain to the secreted fluids, and in this way conducts them gradually to the base of the glottis, where, after an inconvenient accumulation, irritation is set up, and the result is either involuntary deglutition, or hawking forcibly, according to degree of excitement produced.—*Dr. Robert Purves, Lancet.*

THE USES OF THE UVULA.—Dr. Noble Smith condemns, in the *British Medical Journal*, the practice of snipping the uvula, and advocates its complete removal in cases where any operative procedure is called for. He relates two cases simulating consumption, which were at once cured by the removal of the elongated uvula; and says that, in mere snipping the organ grows again, and no good results. On the other hand, Sir G. D. Gibb argues, in the *Lancet*, that the uvula has important functions in deglutition and vocalization, and that its true muscular end does not often become elongated, but only the membrane, and perhaps adipose tissue; consequently, that snipping this part and leaving the muscular fibres intact is quite sufficient, and that no inconvenience arises from this practice.—*The Doctor.*

FOOT AND MOUTH DISEASE.—In the autumn of 1869, when Mrs. —— was suckling an infant eight months old, and was herself drinking about one pint and half of milk daily, she complained of soreness of the gums and of the roof of the mouth. Shortly after, the infant exhibited disinclination for the breast, crying when pressed to take it. On examining the mouth, the gums of the upper incisors were found to be swollen, red, and tender. About this time, the husband of Mrs. —— experienced soreness of the gums and palate, preventing the use of the brush; he, too, had been taking about a pint of milk daily. Tenderness of the feet on walking, but without any visible change in the appearance of the feet, being now complained of by the lady, "foot and mouth" disease suggested itself as an explanation of the phenomena I could not account for; and on inquiring of the milkman as to what he did with the milk of the diseased cows,—some of which he admitted being ill with foot and mouth disease,—he said, after a little equivocation, that he mixed it with that given by the healthy animals. On obtaining a supply of pure milk, and without any special treatment, the symptoms in a few days disappeared. A second child, an invalid, three years old, had no symptoms of the disease, although subsisting chiefly on milk; but this was kindly supplied by the clergyman of the parish, from his own cows.

On November 21st, 1871, I was called to see an infant twelve months old; he had four upper incisors, and two lower; the upper were imbedded in very swollen, red, and hot gums, and the roof of the mouth was also deeply congested. The child was somewhat feverish, but pallid and fretful. The lower gums were of natural appearance. The close resemblance of this to the other cases led at once to the diagnosis of foot and mouth disease. I directed the mother to feed the infant with Nestle's bread and milk flour alone, and to make inquiries as to the health of her milkman's cattle. On the morrow, the pint of milk which had been ordered for the infant was given to three older children. Within two hours the youngest, aged three years, was taken ill with vomiting and diarrhœa, which required medical treatment; the second, aged seven years, with vomiting only; the eldest, aged nine, did not apparently suffer. These children were quite well before taking the milk. The baby, in three days, had quite recovered from the mouth affection, without any treatment beyond change of food, but was irritable and restless, and required a few doses of bromide of potassium. Inquiry discovered that foot and mouth disease was prevalent among the cattle of the milkman.

In all these cases the gums of the upper incisors, and the palate immediately behind, were the first to show signs—swelling, redness, and heat—of the disease. The gums were not spongy, as in scurvy, but firm, yet bleeding slightly on brushing or when roughly touched; the roof of the mouth was corrugated and red, having the appearance produced by and giving the sensation (as described by the gentleman) experienced on eating rank cheese. In the lady's case, the gums of the back teeth and of the lower jaw became affected subsequently, and in a slighter degree than those of the upper incisors. In neither of these cases did I observe vesicles or ulceration. The health was not appreciably affected in the adults, but the two infants—the one receiving its nourishment entirely from his mother, the other partly from his mother and partly from the cow—were fretful, pinched, and pallid, and slightly feverish.

It is obvious that an affection which is so fatal to beasts, and is conveyed by their milk to human adults, and to infants directly or through their mothers' milk, must considerably deteriorate the health. This deterioration has been very striking in two of the four cases I have seen, but has been quickly recovered from; yet one can easily imagine how fatal would be the continuance of a milk diet—so essential for infants, and so likely to be persisted in, on account of the very soreness of the mouth, which would probably soon become ulcerated—if the milk were derived from unhealthy cattle. That milkmen do mix the scanty supplies of the diseased animals with the milk given by the healthy I know; some do it, perhaps, in ignorance, but, I am sure, many knowingly and fraudulently.

I have penned my scanty experience, in response to your invitation of a few weeks ago, hoping that it may assist your recent correspondent in directing attention to the important article of infantile sustenance, the impurity of which, I believe, so often saps at the foundation the life of man.—*Dr. J. C. Gooding, Medical Times and Gazette.*

Fibro-Cystic Tumor of Inferior Maxilla.—This patient, Miss P. L., aged twenty, is from Hartsville, Tennessee, and is accompanied by her most excellent and kind physician, Dr. Dyer. She is the subject, as you see, of a large tumor, which occupies the right lateral half of the inferior jaw-bone. Three years since it was first noticed as a small globular swelling, unaccompanied with pain or tenderness, just anterior to the angle of the jaw. It grew gradually, until it had attained the size of a goose-egg, when Miss L. came to the city to place herself under my treatment. I was absent at the time of her visit. Prof. Nichol examined the growth, and reports that the tumor occupied the posterior third of the body of the bone, the ramus not involved; smooth, hard, and seeming to spring from the bone, and about the size of a goose-egg.

The lady was advised to return to her home and come back in a month, when I would have returned. Unfortunately, she listened to the advice of some person, and placed herself in the hands of a notorious quack styling himself "Indian Doctor," who promised to remove the growth by his wonderful blood-purifier. As a matter of course, she obtained no benefit from the medicine, the tumor pursuing the even tenor of its way, without let or hinderance, until now it has assumed huge proportions. It is now, as you see, as large as the two fists of a man, extending from near the symphysis of the chin to the articulation, reaching far down in the neck, and encroaching high up on the superior maxillary. The skin covering the growth is natural in appearance; the surface of the tumor pretty regularly globular, and smooth, with points here and there, which give evidence, by touch, of the presence of fluid; while at other parts it is hard and firm, as if its walls were formed of bone. It is not painful, nor tender upon handling. The general health of the patient is excellent.

I regard this tumor as benignant, and of the class fibro-cystic, which commenced its growth in the cancellous structure of the bone, and has broken up the bone by its gradual increase. If an operation had been done in May, 1870, when the patient first came to see me, it is probable that the cyst might have been opened, and a pledget of lint placed in it, so as to excite granulations, and bring about its contraction and complete cure. Nothing but an excision of nearly one-half of the lower jaw will do now. Excision of a portion of the jaw is an American operation,—in fact, a Tennessee operation. It was first done by Dr. Deaderick, of Athens, East Tennessee, in 1810.

To remove the jaw, with the tumor attached, I will commence by pushing this sharp-pointed bistoury to the bone, just below the red border of the lip, and making a perpendicular incision to the base of the jaw; then under its lower border to its angle; thence up over the posterior part of the angle to a point half an inch below the zygoma. This large semicircular flap is to be dissected from the tumor, and turned upwards; the lower part, that which is encroaching on the neck, is likewise to be uncovered by the knife. Then, the canine tooth having been extracted, the bone is to be divided at that point, by the saw and bone forceps. The soft parts, on the inner side, are to be separated from the bone as far as the angle, when it (the bone) is to be drawn outward, and the knife kept constantly in contact with it, until the coronoid process is freed, and the articulation is opened, when the remaining attachments can be divided with impunity, and then the whole mass separated. Of course the facial, submental, and transverse facial arteries will be divided, and give rise to very free hemorrhage; and unless the precautions mentioned above be observed, of keeping the knife close to the bone, from the angle to the articulation, there is danger of wounding the internal maxillary artery; the hemorrhage from them can be arrested, for the time, by the little pincettes, and the ligatures applied when the operation is finished. A piece of lint, saturated with a solution of carbolic acid, should be applied to the cut surface in the mouth, and the flaps brought back to their place, and fastened with the silver suture.

For a few days, the swelling will be so great as to interfere with the process of swallowing. In one case, I had to resort to the stomach-tube, in order to get nourishment into my patient's stomach, for more than a week. This, however, was an exceptional case. Generally, a sufficient amount of liquid can be swallowed to sustain life until the swelling subsides.

[The operation was then performed. It was found that the bone had been broken in two parts by the growth of the tumor, above the angle, and the coronoid process and articulating head of the bone had to be removed separately, which was effected by grasping these parts by the Fergusson's lion-toothed forceps, and dissecting them out cautiously. The tumor, upon examination, proved to be cystic, its walls formed of dense fibrous structure, strengthened here and there by plates of bones which had been thrust out by the growth, having dense, strong septa passing through it at various points, forming smaller cysts, each containing a glairy fluid, very much like the white of an egg. The patient is fast recovering, is able to be up, and the deformity resulting from the operation is very slight.]—*Prof. Briggs's Clinic, St. Vincent's Hospital, in Nashville Journal of Medicine and Surgery.*

Epithelioma of Tongue—Removal with the Scissors.—Thomas M., aged fifty-four, admitted into King's College Hospital, under the care of Mr. Wood, October 20. An old soldier. Has been married. No history of syphilis, nor any sign of it on the patient. No history of cancer in his family. Five weeks before admission he noticed that his tongue was sore, and that there was "a kind of blister" on its left edge towards the under surface. It merely caused a little uneasiness when he took food; but for a fortnight before admission into the hospital it had pained him, especially at night. He is a smoker, but holds his pipe on the opposite side to that attacked by the swelling. When admitted he was noticed to have a cachectic, sallow look. There had been profuse salivation of late. There were to the under side of tongue, opposite the front molar tooth, two small ulcers of a quarter of an inch in diameter, with very hard bases, and covered with a dirty secretion. There was no enlargement or induration of any of the glands. The local application of caustic chloride of zinc and the anti-syphilitic treatment were continued till November 18, when, as the affected part increased in size, and no marked benefit ensued, Mr. Wood took out a block of the tongue by the scissors, douching it well with a solution of xl grs. ad ℥j of chloride of zinc and perchloride of iron.

*Remarks.*—At the time of the operation, this affection of the tongue had not the common appearances either of epithelioma or of syphilis. There was a small raised hard swelling, the size of a pea, with a whitish surface superficially ulcerated in one spot, and a hard base; behind the swelling were two small irregularly-shaped surface-ulcerations. The man had been treated for syphilis, but without checking the increase of the disease, and Mr. Wood decided on removing it, because, as he said, if it were not epitheliomatous at the time, it would have a great tendency to become so in a man of his age. We were allowed to take a portion of the removed tissue for microscopic examination, and found in it well-marked evidences of epithelioma,—viz., groups or nests of epithelial cells, as well as cells spreading into the muscular tissue.—*King's College Hospital Reports, Medical Times and Gazette.*

Removal of both Superior Maxillæ.—The early history of the case will be found in Mr. Christopher Heath's work on the Diseases and Injuries of the Jaws. The patient was a married woman thirty-five years of age, suffering from a myeloid tumor affecting the left superior maxilla, and in 1864 Mr. Canton removed the jaw with the tumor. The specimen was exhibited to the Pathological Society, and a careful microscopic examination showed it to be myeloid. In June of last year she again presented herself at the Charing Cross Hospital with a large tumor filling up the antrum of the right upper maxilla, and extending forwards, causing a projection of the upper lip. Mr. Canton accordingly removed the remaining upper maxilla. The operation was perfectly successful and presented in itself no points of particular interest. The edges of the incision were brought together with silver sutures, and no dressing of any kind was used, the mouth being simply kept perfectly clean and sweet by the frequent use of Condy's fluid. Within a week of the operation she left her bed, and within three weeks she was discharged from the hospital. Five months later the patient wrote to say that she had enjoyed perfect health since she had left the hospital. On microscopic examination, the tumor proved to be simply fibrous. It had been growing for a year before removal. Notwithstanding that a great part of the framework of the face had been taken away, and that a portion of the orbital plate was removed at both operations, there was remarkably little deformity of the face. The patient had lost all power of muscular expression, but beyond this there was nothing to attract attention, except a slight falling in of the upper lip on the right side. There was no falling in of the nose, the raphé of what was the roof of the mouth deriving great support from a firm pseudo-palate which had formed of cicatricial tissue after the first operation. The cicatrices of the incisions were scarcely noticeable as they followed the natural lines of the face.—*Charing Cross Hospital Clinic, Lancet.*

ENCEPHALOID DISEASE OF THE RIGHT SUPERIOR MAXILLA — RESECTION OF THE BONE—RECOVERY.—In the latter part of May, 1869, R. L., aged sixty, of nervo-bilious temperament, a farmer by occupation, of impaired health, consulted me in reference to a disease of the right upper alveolar process. He stated that he had experienced an occasional pain of a sharp, lancinating character in that side of the face for nearly twenty-five years, but of such a transitory nature as to have given rise to no uneasiness as to its serious import; also that his general health had always been good until about two years ago, when from some cause or other it began to decline more or less rapidly.

I found, on examination, the entire alveolar process to be one mass of fungoid disease, through which the only remaining teeth, the second molar and canine, protruded. I extracted these teeth for the purpose of ascertaining the condition of the antrum; this was found to have become implicated, and from it a foul, bloody discharge issued. The opening made by the extraction of the canine tooth would have admitted the end of the little finger, being partly occupied by a dark-colored fungous mass of the consistence of brain, which came away in fragments when broken down by a probe. A probe introduced into the opening met with no obstruction until its extremity impinged against the under surface of the floor of the orbit. The patient was much emaciated, and his strength so much weakened that his gait was tottering and unsteady, his appetite impaired, and his pulse feeble. The skin covering the bone was slightly discolored for a space of about an inch commencing at the ala of the nose, and extending transversely that distance; there was tenderness on pressure at that point, and some puffiness of the integument. For the relief of the patient, an operation consisting in the resection of the bone entire or in part, was clearly demanded; but his condition forbade any such procedure at the present time. He was, therefore, put upon a preparatory tonic treatment, with a nutritious diet. The local treatment consisted of astringent washes and injections into the cavity of a solution of carbolic acid, grs. x to an ounce of water.

The patient having improved in health, the operation was performed on the second of July, and was the one advised by Velpeau, his modification of Gensoul's method. I was ably assisted in the operation by Dr. H. A. Chase, of Viroqua, and Dr. Charles Poff, of Readstown, in this county. The patient having been placed under chloroform (this occupied upwards of an hour at the least calculation, on account of the impurity of the article), an incision was made from near the outer angle of the eye to the commissure of the lips; the large flap thus formed was dissected from below upwards and turned back out of the way. The bone being thus exposed, I next proceeded to sever its connections with the other bones of the face. With Liston's cutting pliers, the external orbital process at its junction with the malar bone, the zygomatic arch, and the os unguis, were cut through, and the ascending nasal process with a narrow chisel and mallet. The two incisors of the right side having been extracted, the two maxillæ were separated in front with the metacarpal saw, and also its palatal process as far back as its junction with the palatal process of the palate bone, as well as its transverse connections, which were divided by the chisel and mallet through the mouth. The bone being now seized between the thumb and fingers, was forcibly moved from side to side, and after a little effort raised from its bed. The cavity, having been cleared of any remaining shreds of the tumor, was filled with lint. Very little blood was lost during the operation, not to exceed eight ounces. But a single vessel required the ligature. Before bringing the lips of the wound together, the indurated tissue on the inner surface of the flap where it had been in contact with the tumor, was shaved off. As soon as the anæsthesia had passed off, half of a grain of sulphate of morphia was administered, and the patient placed in bed.

On the fifth day after the operation, the sutures were all removed, and the wound was healing by the first intention throughout; the flaps were supported by adhesive straps in case of accident. For a few days after the operation there was slight febrile reaction, lasting for three or four days, after the subsidence of which the patient made a rapid recovery, and about the fourteenth day was walking about his room. He complained of some difficulty in deglutition and in articulation, but no more than is to be expected after this operation; both gradually became less annoying in a much shorter time than I had anticipated. The tumor presented all of the characteristics of true encephaloid disease.

P.S.—Up to date of present writing, November 5th, Mr. L. continues in the enjoyment of excellent health. He informed me a day or two ago, that since the operation, it has been better than for a number of years past. The parts have healed kindly and soundly to all appearances. I shall deem it my duty to report the subsequent history of this case, as too short a time has elapsed since this operation to determine its result.—*Dr. W. A. Gott, in American Journal of Medical Sciences.*

# HINTS AND QUERIES.

Does tin weld?—J. A. B.

What are the juices of the flesh?—H. E. L.

How does creasote act on tissue?—S. T. J.

What are the evidences favoring the hypothesis that dentinal tubuli are filled with fluid?—W. R. P.

Is an excessive supply of oral mucus evidence of a catarrhal affection of the mucous membrane of that cavity? And, if so, is such catarrh amenable to treatment?—H. L. D.

Can a dental practitioner honestly appropriate the title of "Doctor"? If so, may not the lawyer, the divine, and the physician just as honestly assume the title?—J. S. L.

How can nitrous oxide produce asphyxia, and consequently death? The question is suggested by the newspaper report that an inquest was held in the case of Mrs. Shaughnessy, and the verdict was death by inhaling laughing gas in a dentist's chair in New York City.—J. A. T.

What is the difference of sensation in the dental pulp and the dentine?—A. N.

What can be done to prevent abrasion, or wearing down of the teeth?—W. E. V.

Is there not danger of producing necrosis of the teeth by wedging?—W. E. V.

Why does abscess, or at least a good deal of pain, and often swelling, almost always follow the opening up of a tooth containing a dead pulp? and is there any method of prevention?—Young Practitioner.

Is there any amalgam that retains its color in the mouth, and does not discolor the tooth by its own oxidation?—Anti-Amalgam.

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Reply to "Ward."—"Will not some of the experts in the use of heavy foil give a detailed account of their manipulations of it for the benefit of those who have not the opportunity of seeing it worked?" My advice is to *make the opportunity.* The *half-hearted* manner in which "excellence" is sought by those who desire to fill the higher ranks of the profession, is chargeable with being *the* cause of the low estate of ability now so lamentably prevalent.

Dentists cannot be "*told*" nearly so efficiently as they can be "*shown*" how to use "heavy gold." I will engage to "*show*" any *earnest* "presentable" dentist *just* how, and tell him *why*, to use heavy gold, if he will give me the "opportunity."—W. H. Atkinson, 41 E. Ninth Street, *New York.*

Reply to "C. T. J."—"What is the best article to mend a broken plaster-cast of a tooth or any nice cast of an impression?" I have tried many things, but I think that common glue, not made too thick, is best. Moisten the plaster-cast first at the broken places, and apply the glue. The union is very strong, and I think this an important hint, for it is so often that we break casts; and I have tried shellac, sealing-wax, etc., with indifferent success.—Laboratory.

Replies to "W. C."—"What is the best mode of preventing the dark line shown at the junction of sections of gum teeth?" Open your joints a little *behind.* Fill the open V with oxychloride, being sure to carry it from plaster to plaster at either end of seam. I also pack my cases as soon as the plaster is thoroughly set, lest the slight shrinkage in drying should allow the blocks to spread sufficiently to admit the rubber. Am operating as above with good success.—A. H. S.

Another correspondent says: My method is to invest in the lower flask as usual. Put on the upper flask, and pour in the plaster around the outer side up even with the cutting edges of the teeth, and let it harden thoroughly. Then fill the lingual space, and put on the top plate of the flask. In this way I have secured uniform success. I use oxychloride sometimes if the joints are a little open, but seldom use anything.—W. T. M.

Reply to "K.," who desires to know if natural teeth removed by accident have ever been replaced satisfactorily unless the pulp was removed and the canal properly filled.

There are numerous cases on record in which teeth removed by accident have been replaced satisfactorily, without the necessity of removing the pulp and filling the canal. The only thing to be done in most cases is to syringe out the socket with tepid water, cleanse the tooth in the same, and place in position, holding it for a few minutes. If there is any tendency on the part of the tooth to spring out of place, it may be attached to the other teeth with silk ligatures until union takes place.—B. H. F.

Reply to "Western."—"What kind of filling in nerve canals gives the best results?" Having used oxychloride, with gold, for six years, for such fillings, I am satisfied that better results are obtained than by any other mode yet in practice.

"The How." After cleaning the canal as thoroughly as possible, wipe it out with a piece of wood dipped in carbolic acid. Then take a small coil of gold that will pass into the canal; smear it well in the oxychloride paste; then pack it home, and you will have a better filled root than with cotton or paper.—B.

Reply to "G. M."—"How much platina is required to make gold elastic enough for clasps? Is a high heat required to melt the platina so as to mix with gold? Has the platina the same effect on silver?" About two grains of platina to the dwt. of 18k. gold is sufficient. Fuse the platina (old pins or scraps) before the blowpipe with about half the gold, using heat enough to run them together, but not to melt the platina. It will make it very hard to work out. When cold, forge the mass, and roll out quite thin. Repeat this several times before melting in the crucible with the remainder of the gold, and there will be no trouble in getting the platina thoroughly mixed and dissolved in the gold. Silver becomes elastic by the addition of platina, but not so much so as gold. It is difficult to make tough.—Plat.

Reply to "H. S."—"How can I make a hard, flowing solder for use on plates (gold and silver) that will not roughen when soldering the teeth on?" To ordinary flowing solder (gold or silver) add from one-third to half its weight on plate scraps; melt and forge to the required thickness. This can readily be done on a charcoal. We usually make it as required,—a dwt. or two at a time,—to avoid the annoyance of having so many kinds of solder on hand.—Lab.

Reply to "D. S."—"What is the best instrument for drilling roots intended for pivot teeth, so as to insure a round, straight hole?" A twist drill, such as is used by mechanics, if kept in order, is excellent for this purpose, cuts rapid and easy, does not clog, and almost insures a perfectly true hole. Have been using them for this purpose, and also for opening into pulp cavities, for several years with great satisfaction.—Drill.

Reply to "E. P."—"What preparation is required to make silver deposit of steel?" After polishing, immerse for a minute or two in strong sulphuric acid. After removing, rinse well in clean water, and suspend in a bath containing one pound of cyanide of potassa to the quart of water, until it has a whitish appearance. Remove, and immediately connect with the battery, and suspend in the silver solution. Any silver solution will answer for this process.—W. T. H.

Reply to "C. S."—"Can the black be removed from Arkansas stone, used to sharpen instruments, without the use of acid?" If cleaned frequently, a little soap and a stiff brush, aided when very bad with a little pulverized pumice, will remove the black. A little soapy water on the stone makes it cut much more rapidly.—Tod.

Reply to "A. F."—"Is there anything better than alcohol for washing amalgam?" For the last few years (after seeing it recommended in the directions with Walker's amalgam) I have been using soda for this purpose, and find the fillings keep their color much better than when alcohol was used. Suppose this is owing to the soda acting mechanically to promote a more thorough amalgamation. It is used as follows: place in the Wedgwood mortar the mercury and amalgam filings, with about eight or ten times their bulk of finely-pulverized soda, and grind all together until the mercury disappears. It is essential to have everything dry until the grinding is complete. Add a few drops of water, and grind again for a few minutes. Wash with hot water until the water comes off perfectly clean, and remove the surplus mercury by the usual means. Borax, or any other equally soluble inert substance, will answer the same purpose.—Amalgam.

Reply to "A. F."—In reply to your querist, who asks, "Is there anything better than alcohol for washing amalgam?" I answer, There is perhaps nothing better, but certainly something more economical. The plan which I pursue in my own practice is to mix the filings as usual into a stiff paste, adding a little common salt, and by the use of water wash it until the button of amalgam is thoroughly cleansed and free from coloring matter.—B. H. F.

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Arsenious Acid as a Remedy for Sensitive Dentine.—In the March number of the Dental Cosmos, Dr. Kingsbury makes some deductions not warranted by anything he writes in that article, to the effect that the death of the pulp in the case he refers to was caused by the application of the acid to hypersensitive dentine. To illustrate: A lady, aged twenty-seven, of a delicate organization, nursing her first child, four months old, and doctoring for "liver complaint," called to have me do something for her teeth, which were aching. On examination, I found the inferior first molar on left side had an ant. approximal cavity in it; second bicuspid same side, posterior approximal and the first bicuspid likewise.

There was not an exposed pulp among them, nor a nearly exposed pulp. Neither of the cavities was deep, but the teeth were very sensitive, and ached all the time, especially the molar. She could not bear the slightest pressure in either of them. I cleansed them as best I could; applied an antiphlogistic; took about half a fluidounce of blood from the gum by leeches, and sent her home. Saw her the next afternoon. She had suffered all night from the molar, and on examination found every symptom of periosteal inflammation. She begged me to extract it, and, being completely baffled, I administered nitrous oxide and extracted it. I found, as I expected, a dead pulp, although the dentine over it was one-sixteenth of an inch in thickness, and solid. The other two, after continuing the above treatment for a week, I filled with Guillois's cement. In seventy-eight hours I had to extract them both, and in neither of them was there less than one-sixth of an inch of good dentine over the pulp. This shows to a certainty that other things than arsenious acid can produce death of pulp. I do not advocate the promiscuous use of arsenious acid, but can show cases where it has been beneficial, and Dr. Kingsbury would have to acknowledge it. Now for the remedies "equally efficient." My experience is, that nothing (and I have tried all things recommended, I believe) will relieve pain from hypersensitive dentine. If there is, I want to know it, for of all things trying, this caps the climax.—M. S.

Prices.—There are in Ohio plenty of operators who make the average price of gold fillings $1. It seems to me that if they would think a little, they would discover that they were making a great mistake. There is no profession that requires more of a man than dentistry, and his efficiency really lasts but a few years. Taking this into account, and the cost of preparation, there is no profession as poorly paid. To illustrate, I will take my own case:

| | |
|---|---|
| Paid my preceptor | $100 |
| Cost of living two years | 1000 |
| Expense of collegiate course—two courses of lectures | 1000 |
| My time—worth at least $500 per year—four years | 2000 |
| Outfit | 1000—$5100 |

I have now spent $5100, and am only ready to begin (and I have put everything at the lowest price). My talents would bring a salary of $1500. My capital ought to bring me ten per cent., making $2000, and yet I work from early morn until late at night to earn $1000, and my prices are considered too high. These things keep talented men out of the profession, and at the present rate a few generations will find it filled with quacks of the cheap order, and then there will be a reaction.—M. C. Sim.

Furrowed Enamel.—Mustin Barnard, a lad about fourteen years old, said he had the measles when five or six years of age, and was not expected to live for a long time. The two central superior incisors are grooved across near their cutting edges or points.

The four to six year old molars are similarly grooved all around the borders of the grinding surfaces, with sharp points projecting up at each cusp. The father and elder brother, as well as the lad himself, all state that the grooving was up close to the gum, after the teeth were fully erupted, and that the grooving continued to grow off or toward the cutting edges or ends of the teeth, and that it was perceptible from year to year.

The teeth are all well developed, and not worn at all at cutting edges. What does this teach us? That wonders never cease.—S. P. Cutler, M.D., D.D.S., *New Orleans.*

THE

DENTAL COSMOS.

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# ORIGINAL COMMUNICATIONS.

## DENTAL PATHOLOGY AND THERAPEUTICS.

BY J. FOSTER FLAGG, D.D.S.,
FORMERLY PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS IN PHILADELPHIA DENTAL COLLEGE.

[Entered according to act of Congress, in the year 1872, by J. Foster Flagg, D.D.S.,
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(Continued from page 238.)

### CONGESTION.

IN any case in which "determination" has ensued as the result of irritation, and from which the cause has not been removed, still greater changes in regard to circulation will in due time be apparent upon microscopic examination, and other peculiarities of sensation are simultaneously announced. Capillaries, after having alternately diminished and enlarged several times, gradually assume a general distention; corpuscles sway in alternate rapidity, and comparative quiet, until amassing and approach to stagnation supervene; color changes from redness to blueness; size is increased by what is known as "swelling," in which we have loss of contour, puffiness, atonized expression of parts, and usually pitting upon pressure; functional action is more and more seriously interfered with; secretion, in connection with glandular structure, is conceded to be limited almost, if not quite, to entire cessation; sensation, which up to this time has increased to pain, accompanied with throbbing, becomes changed to comparative dullness, with feeling of coldness, fullness, numbness, and weight, and everything, it will be noticed, seems to depart from activity to assume the characteristics of torpidity, until sometimes even *death* may ensue. This condition we shall know as "congestion," or too much blood in a part, with its motion diminished.

The first peculiarity which is noticed in this connection is its division into *sthenic* and *asthenic;* the first passing rapidly and markedly from one condition to another, and the second merging almost imperceptibly into the more grave deviations from normality. We find also, as typical of this division, either circumscribed (sthenic) or diffused (asthenic) *swelling.* This we must consider with care, as it has practical bearings of much importance to us. Recognizing the present impossibility of ascribing this result to any particular mode of action, and thus ignoring alike the statements that it is atony of tissue, mechanical pressure, want of nerve-strength, etc., we nevertheless know that, with greater or less rapidity, a seeming "transudation," or "effusion" of what appears to be simply the more watery portion of the fluid of the blood (serum), takes place outside of the capillary arrangement, and filtrates or percolates through the cellular structure of membranous, glandular, muscular, or other tissue. The characteristics of this fluid will, as I have intimated, be found to depend entirely upon constitutional or systemic condition, though they are necessarily modified by local anatomical and structural considerations; thus, if the system is anæmic, the blood poor, and tonicity of low standard, effusion will be copious, as the result of even moderately strong irritation, and composed almost entirely of water, with blood-salts in solution, and is regarded as non-organizable; while congestion, in connection with plethoric (sthenic) condition, is rather productive of limited effusion of fluid, which seems a *degree nearer organizable,* or at least more easily absorbed. This possibility, however, it will at once be recognized, most probably depends quite equally upon the same systemic energy which produced the better fluid.

*Treatment.*—Congestion, like other abnormal conditions, calls imperatively for the *removal of the cause,* if possible. Injurious pressure must be recognized and prevented; the heart's action controlled by sedatives in view of violence, and excited by stimulants when inert; the restoration of secretion attempted by medication; general relief given by proper direction as to diet; prevention of imprudence in regard to exposure, exercise, etc.; and attention to that discipline which is beneficial to invalid conditions.

Having seen that congestion has, as its concomitant, atony of the capillaries, we should bear in mind constantly such treatment as this would suggest. In view of this, the position should be so regulated as to remove or equalize internal pressure, and *gravitation* should be combated so far as its tendency is disadvantageous, and utilized when it can be beneficial.

*Pressure* upon a congested part will be found to be of benefit, especially where it is easy of access; in our specialty we generally use the complication of pad and bandage, from the fact that the irregularity and mobility of the parts render it difficult to arrange either alone so that a *proper bearing* will be *retained* for the desired length of time. This application relieves congestion by giving support to the vessels of the part, preventing further distention, permitting the re-establishment of irritability and tonicity, and promoting the contraction consequent thereupon.

*Friction* is regarded as advisable in cases where stimulation is indicated.

*Astringents* are employed to contract and strengthen tissue through the medium of its vitality. Of these we have alum, sulphate of copper, acetate of lead, tannin, tinctures of catechu, myrrh, kino, etc.

*Stimulants*, acting through the same medium, are regarded as particularly indicated in asthenic congestion, and are employed in the form of lotions, ointments, tinctures, etc.; examples are ammonia, camphor, capsicum, alcohol, heat, and electricity.

*Sorbefacients* are used in asthenic congestion for promoting the absorption of effusions; of these, iodine, bromine, the iodides, and the bromides, are the preparations most esteemed.

*Conclusions.*—Congestion consists visibly of too much blood in a part, with its motion diminished; its location is in the veins and venous capillaries; its concomitants are swelling, blueness, pitting, marked diminution of functional action, constant dull pain, and sensations of coldness, fullness, numbness, and weight; and its treatment is removal of cause, prevention of further injury, modification of pulsation in view of excess or deficiency, appropriate directions as to medication, diet, exercise, etc.; regulation of position, so as to combat or utilize the force of gravitation; the employment of pressure for support, together with friction, astringents, stimulants, and sorbefacients as indicated.

### INFLAMMATION.

Determination having been followed by congestion, if the irritant be still permitted to exert its power, or, even after its removal, if from any cause the attempt to procure a restoration of normal circulation is unavailing, a still greater deviation from health takes place, which is in degree more or less violent according to controlling circumstances. Much more complex, much more uncontrollable, and much more serious in its usually possible results is the condition which now supervenes, and which we shall know as "inflammation."

When conversation, either generally or professionally, relates to disease, there is probably no word which appears, from the frequency of its applicability, to occupy so prominent a position as the familiar one of "inflammation;" and yet I venture to assert that the number of those who attach even the least *definite* idea to the term they so often employ is small indeed. It is one of those habitual expressions, the meaning of which every one seems perfectly to understand, while in reality they know nothing about it. It is sufficient, however, for the masses that they attach a certain significance to the term; but for us, particularly as *specialists*, it is indisputable that just in proportion as fine points of difference between the varieties of local hyperæmia become to us more tangible, so will we be enabled to treat them more skillfully.

When true inflammation exists, we find, upon microscopical examination, an extended and general enlargement of all the vessels, arteries, capillaries, and veins; the blood moves with intense rapidity in all adjoining vessels, while in the more central location the capillaries are tortuously distended, and their visible contents at least are assuming appearances excessively peculiar. As successive deviations from normality occur, a gradual increase in the number of white blood corpuscles is perceptible, until they become proportionally quite numerous; these still occupy the position which has been referred to when upon normal circulation, and move sluggishly along the vessels in close proximity to their walls. A tendency to adhere, which is noticeable even in normal circulation, is now found to have become decidedly developed, and many at last remain seemingly attached to the sides of the vessels and to each other. The distended, atonized, and tortuous capillaries offer peculiar facilities for these adhesions, and it is here that the white corpuscles mostly attach themselves, and being apparently drawn out by the current of passing liquor sanguinis, they remain in a "tadpole form." In proportion as the number of these fixed corpuscles is augmented, so the free passage of the red corpuscles seems to be prevented, and these becoming crowded together in the centre are closely packed, each pulsation adding fresh supply to the accumulating mass, until at length the vessels seem thoroughly distended by blood disks alone, and the part affected presents the peculiar scarlet color and angry appearance indicative of inflammation. We have noticed the change of temperature, first increase then decrease, found in connection with determination and congestion, and now again we notice a great increase, an almost fiery burning, compared to which the "heat" of determination is as nothing. Sensation also is again increased, and pain more and more intense, until it sometimes is excruciating, corroborates in its turn the existence of inflammation. The swelling increases in size, and, losing its characteristic of pitting upon pressure, becomes firm and tense; the effusion of congestion (non-organizable) now is replaced by a fluid which is called the exudation of inflammation, or coagulable lymph (organizable), which is capable of various degrees of organization, either healthfully or even more quickly than healthful, as in cicatricial tissue, false membranes, etc.,—*euplastic;* or lower in quality, producing indurations, etc.,—*cacoplastic;* or lower still, producing curdy matter, yellow tubercles, etc.,—*aplastic.*

Upon these various interesting topics are promulgated all the still changing theories of pathology,—ingenious, plausible, refutable, and not yet refuted, but none acceptable to all, and the best only acknowledged as "the accepted theory of the day." It may seem strange that, with all this doubt, we should be able to offer any amount of that which is reliable either in principles or practice; but it must again be submitted that this theorizing is concerning "how" all these things take place which we see and feel, and "how" all the relief is brought about which we *know* does occur as the consequence of medication, discarding the vast amount which is *thought* to occur; and, having thus recognized that we have obtained much that is useful and available as the compensation for our endeavors to obtain more, we shall go on with renewed vigor and, we trust, ever be increasingly rewarded. Inflammation, then, is recognized as a condition of tissue in which we find too much blood, with its motion partly increased and partly diminished. Its physical signs are angry redness, great heat, and tense swelling, and its vital symptom is pain.

It will be noticed that the results which have been alluded to as the products of determination and congestion have been given as pertaining to inflammation, but always in that aggravated form which it would seem natural to expect from the intricacy of continued irritation. We find the heated flush, the extreme sensibility, the throbbing pulse, and the feverish irritability produced by the former, and the stagnation, distention, and swollen tissues of the latter; we find the natural functions of that portion through whose vessels is passing an undue amount of blood increased in activity; and, on the contrary, deficient action, amounting even to absolute cessation, in the part where aggregation and stagnation are most complete. And it seems as though this juxtaposition of such diametrically opposing conditions gave to inflammation its destructive violence and its dangerous complexity. When inflammation is once fairly established, there are certain modes of treatment, which will be presented hereafter, by means of which we are enabled, under some circumstances, to subdue the excitement and stimulate the activity (which we have seen to be its coexisting characteristics) in such a manner as to arrest the progress of disease and restore the parts to a healthy condition. In slight forms of inflammation, this result is sometimes attained by vitality unassisted. When this is effected, it is termed the "resolution" of inflammation; but if from inattention or other causes that point has been passed which precludes the possibility of such favorable result, we find that a natural course is marked out which must, to a greater or less extent, be followed. We have then "*decided effusion*," "suppuration," "ulceration," "gangrene," and "sloughing" of soft parts, and "caries," "necrosis," and "exfoliation" of hard parts.

(To be continued.)

# INTERDENTAL SPLINT, WITH CASE IN PRACTICE.

BY D. B. M'LAIN, NEW LISBON, OHIO.

In the latter part of March, 1871, Mr. J. M., aged fifty, fell from the platform of a railway car in motion, losing his left arm above the elbow, and sustaining injuries of the face, as follows:

The bones of the face between the eyes and mouth had eight distinct fractures. The nasal, malar bones, and superior maxilla, were found to be perfectly loose and independent of each other, the articulation between them being completely destroyed. The right malar bone was fractured about the middle of the upper edge, causing almost the only deformity noticeable except a slight protuberance at the articulation of the right nasal bone and superior maxilla. These injuries, as well as a transverse fracture of each ramus of the inferior maxilla, were skillfully treated by an experienced surgeon before I saw the case; but, from some cause, he almost entirely neglected an oblique fracture of the inferior maxilla, starting between the left central and lateral incisors, and slanting toward the ramus at an angle of about forty-five degrees. All he had done was to twist a silver wire around the two teeth adjoining the fracture, and, as they were very loose, the wire, of course, came off, and he made no further effort.

Six weeks after the accident, the patient having been brought home, his surgeon called me in to file notches in his teeth, to wire them together, which, when I saw the case, I refused to do, as I could make a splint and adjust it, when he at once told me to take the case as far as the mouth was concerned.

Bean's method I consider too complicated for a dentist in ordinary practice to undertake, and, in this case, impracticable.

On examination, I found it a simple fracture, and of such a nature that by grasping the jaw on each side, and bringing it accurately together, it was very firm, the other fractures having firmly united.

I warmed a piece of paraffine and wax, about as long as my thumb and twice as thick, making it very soft. Having the head firmly held by an assistant, I introduced the wax, and grasping the jaw, holding it firmly and accurately joined, I directed him to bite slowly and gently. I simply took an antagonizing impression, just as I would for a partial denture.

Before the accident, his superior and inferior incisors were nearly a half an inch apart when the molars occluded.

I let him bite until the molars almost touched; removed the wax and trimmed it (leaving the lower bite intact), so that it rested on and embraced the points of the inferior teeth as far back as the second bicuspids, and the superior teeth from the cuspid to the second bicuspid on each side, leaving an opening below the superior incisors about an inch long and half an inch wide, through which to take liquid nourishment. The wax I reproduced in whalebone rubber; polished and placed it in the mouth; passing a silver wire around the cuspids (instead of the loose incisors), drawing the edges of the fracture firmly together. When all was in place and the teeth drawn firmly into the splint by a modification of the four-tailed bandage, it was as secure and comfortable as one could wish. He could drink his food and talk without inconvenience. The splint was kept in only five days, being taken out without my knowledge; but the uniting process had begun; and as he was exceedingly careful, even to sleeping in an easy-chair for several weeks, no harm resulted. The surgeon who first treated the case, not being aware of the peculiar antagonism of his teeth, tried, while the superior maxilla was broken up and free, to get the jaws and teeth into a natural position before the patient knew what he was trying to do.

The result was that the entire lower part of the superior maxilla is set almost the width of the molars to the right, making mastication a little difficult. When I took the case, his gums had become spongy and hypertrophied from using liquid food. The upper teeth, naturally short, were almost hidden. I ordered a wash of dilute carbolic acid, and friction with a very soft tooth-brush. The case is now all right. The patient is one of our leading attorneys, and is about as good-looking as formerly.

## THE CELLULOID BASE.

BY W. F. WINNE, ALBANY, N.Y.

The experience of Dr. Eames in using celluloid is so exactly opposite to my own and to that of all my professional acquaintances who have adopted the new base, that I feel it a privilege and a duty to offer you the following statement of facts that have occurred in my own practice.

I commenced using celluloid before it was generally offered to the profession, and the experience of a year and a half has so confirmed me in its favor that I should not again adopt rubber, if the Cummings patent and the license system should go to their death together.

I have never "boiled" celluloid in oil or anything else, but have manipulated it according to the plan described in the printed instructions furnished by the manufacturers.

The following list of experimental cases are fair average samples of a hundred cases that I have put up with this base, and upon which I form my opinion of its merits :

Case 1.—November 10th, 1870, inserted full set for Mr. S. Have seen them within the last month, and found no change whatever.

Case 2.—November 20th, 1870, ten teeth on upper jaw for Mrs. H. Have seen them several times ; no change, and they give perfect satisfaction.

Case 3.—November 23d, 1870, inserted full set for Mrs. B. Saw them within the last week, and found no change.

Case 4.—One central upper, December 1st, for Miss B., which I see every day; no change in it.

Case 5.—Inserted, December 10th, 1870, eight teeth on lower jaw. Have seen them within two months; all right.

Case 6.—January 14th, 1871, inserted one tooth for Miss T., upper jaw; all right still.

Case 7.—February 11th, 1871, seven teeth, upper jaw, for Mrs. H. Have seen them within six weeks; all right.

Case 8.—February 15th, 1871, full set for Mrs. P. Saw them a month ago ; they were all right.

Case 9.—March 3d, 1871, four teeth, under jaw ; no change.

Case 10.—April 10th, 1871, full set ; as good to-day as ever.

Case 11.—Inserted, May 15th, 1871, ten teeth in upper jaw ; worn still.

Case 12.—June 20th, 1871, full upper set ; no change as yet.

Case 13.—August 26th, upper set; see them often; satisfaction perfect.

Case 14.—August 30th, full set; wear well.

Case 15.—September 18th, two teeth, upper jaw; all right.

Case 16.—October 25th, one tooth, under jaw ; six months, and no change.

Case 17.—November 24th, eight teeth, upper jaw; fit perfectly last week.

Case 18.—December 22d, under set; wear finely, and no change of shape.

These cases have all been more or less under my observation from the dates of their insertion till the present time. They have retained their form, color, and hardness from first to last.

Many of my patients, in addition to being generally satisfied with celluloid plates, particularly express their pleasure at the feeling of the plates in their mouths and their freedom from taste.

These facts, Mr. Editor, with all I know about the celluloid base, warrant me in pronouncing it worthy the adoption and confidence of the profession.

# THE RELATIVE VALUE OF TIN AS A MATERIAL FOR FILLING TEETH.

BY J. S. LATIMER, D.D.S., NEW YORK.

It has been the custom of dentists to say of gold that it is by far the best material for filling teeth; and of tin, that it is next to gold. It is not my object to quarrel with this verdict, which is true in the main, but to claim for tin a superiority to gold for special cases.

Let us specify some of these cases. Poorly organized teeth, decaying rapidly and presenting the leathery, laminated appearance of the carious dentine which we so often see, are best preserved by tin fillings. All the deciduous teeth are fully as well preserved by tin, and, for a very large proportion, it is preferable to gold.

For the molars and bicuspids, when the cavities are very large and the walls frail, requiring, if filled with gold, large and expensive operations of doubtful permanence, tin may well take the place of gold. Its admitted preservative influence; its adaptability; the relative saving of time, as compared with gold, and the facility with which it may be manipulated in the wet mouths of children, combine to make it a most desirable material for our purposes.

It has one drawback: it is not nearly so strong as gold, and hence will not so well bear the attrition of mastication; yet it may be so packed as to wear very well on masticating surfaces,—much better than is generally supposed.

It may be doubted whether tin is capable of cohesion under our pluggers; and yet the fact that when the smallest possible amount of moisture interposes the adhesion of additional portions is rendered impracticable, may well incline us to believe cohesion possible.

Besides this limited cohesion, we have interdigitation as a mechanical bond of union; and this is produced by the perforating serrations of the plugger, by which the foil in laminæ is driven into the preceding portions.

With these well-known characteristics in mind, we can readily determine how to best prepare it for any given case. Thus, for large and deep simple cavities, with walls intact, sections of rope or mats or pellets made of No. 4, may be packed against the distal or cervical wall, and pellet after pellet added, keeping the wall of tin nearly perpendicular to the bottom of the cavity, and advancing toward the mesial wall.

No. 20, used in single thicknesses, answers best for completing even such fillings, and is indispensable for other cavities.

These squares are made to vary from a quarter of an inch to three-quarters, and are packed with the deeply-serrated points used four or five years ago for packing gold. Each piece is adjusted and partially condensed by hand, and then the mallet is brought into requisition and the condensation thoroughly done before another piece is added.

Cavities in molars and bicuspids, compounded of the grinding and proximal surfaces, for instance, may be well and lastingly filled by means of heavy tin foil packed as described.

At first I feared it would not long endure the attrition of mastication when employed in such cavities, but a more extended observation inclines me to think well of its hardness when well packed.

In my practice, tin has so far supplanted amalgam that I use hardly an ounce of amalgam a year, while I use many ounces of tin.

## GALVANIC ACTION IN THE MOUTH.

BY H. C. B.

Having recently been the involuntary subject of an undesigned experiment, whereby I suffered peculiar sensations, I am constrained to communicate briefly the chief points for insertion in your valuable journal.

Many years ago the distinguished Dr. ——, who had a special penchant for amalgam, filled a large number of cavities in my teeth with this useful but much-abused material. Recently my friend Dr. C. A. Woodward filled with gold a small cavity in the approximal surface of the lower first molar, and at the same sitting placed a small cotton wedge between the first and second molars for the purpose of separating the two teeth, thus pushing the tooth filled with gold against that containing the amalgam. Of this fact, however, neither of us was aware until afterward. Upon leaving the dentist's chair, I felt, as I supposed, the usual disagreeable sensations consequent upon dental operations, and to which I gave little thought, especially since one of the teeth had caused considerable pain.

The sensations, however, continued throughout the day, and, instead of passing away, increased in severity during the following days. During this period my experience was briefly this: my teeth, to employ a significant expression, were continually "on edge;" I did not relish my food, though blessed with a hearty appetite; a peculiar tingling sensation, confined principally to the region occupied by the teeth abovenamed, continued without cessation, aggravated by eating, especially anything sweet. During this period I was excessively sensitive to outward impressions. Thus, the slight scratching of a soft gold pen lightly running over highly-glazed paper excited such disagreeable sensations that I would gladly have escaped them, while the grinding of the wheels of a horse-car was fairly torturing. With regard to the nature of the sensation experienced, I can only describe it by saying, "it made my blood run cold,"—a common expression, the full meaning of which I never before realized. Occasionally such vibrations gave rise to a tremor which seemed to shoot down my spine and fairly made me shiver.

At length, satisfied that the sensations increased in intensity, I determined to have the cause investigated. I described my sensations to my friend, and hinted at galvanic action. Dr. Woodward immediately accepted this explanation; and after breaking contact between the two metal fillings, by filing and removing the cotton wedge, dismissed me, as we both supposed, perfectly cured.

Strange to say, the sensations continued on the following day, notwithstanding the metals were no longer in contact.

Nothing then remained but to remove one of the fillings: unfortunately, we were obliged to sacrifice the gold and permit the amalgam to remain. On removing the gold, we found that what had been an excessively sensitive cavity but a few days before was now completely callous, evidently the result of the galvanic action.

A gutta-percha filling was substituted for the gold one with immediate relief.

This history may be interesting to physiologists as suggestive of the intimate relations between galvanic action and nervous sensibility.

## EXCAVATING SENSITIVE CAVITIES WITHOUT PAIN.

BY THEODORE F. CHUPEIN, CHARLESTON, S. C.

A CASE recently presented where there was such an exalted degree of sensitiveness of the dentine as to prevent me proceeding with the operation of filling. Miss S. desired the first and second right lower bicuspids filled on their approximal surfaces next each other. Having separated the teeth by filing, which did not seem to give her much pain, I proceeded to excavate the cavity in the first bicuspid, which was the larger of the two; but on the slightest touch of the excavator she writhed in such pain that I was unable to proceed. After three or four attempts, I found that I could not make the slightest headway, and the lady said she was unable and unwilling to submit to such torture. There was no means of applying any of the substances used to obtund this high degree of sensitiveness, simply because there was, as yet, no cavity; the surface being flush and even, the decayed dentine in *statu quo*. The patient, with the best desire to preserve her tooth, said she could not bear the pain, and would prefer to lose the tooth rather than submit to it. She wanted "the nerve killed" (as they all do), but this I refused to do; and even had I been willing to do this, there was actually no place wherein to apply the arsenical paste. Under these circumstances, I directed my attention to the second bicuspid. The cavity in this, being shallow, and not giving any pain, I shaped for the introduction of the filling of gold. I next applied the rubber dam, and filled the tooth. When I had finished, I recollected having read, in the January (1872) number of the DENTAL COSMOS, the remarks of Dr. A. H. Brockway, of the Brooklyn Dental Society, on the subject of sensitive dentine, and the almost total immunity from pain in this *if the cavity be kept dry during excavation.* Here was a chance to verify it. I therefore told my patient of this, and asked if she were willing for me to try. I tried, and succeeded to my own and to my patient's utmost satisfaction. The dentine, which before I could not touch, was removed with scarcely any pain to the patient, and the tooth filled *without the death of its pulp.* I am very glad to add my testimony to this proposition of the gentleman referred to, and am much obliged to him, and so is my patient, although unknown to him, for giving publicity to this mode of practice for the alleviation of suffering.

## REPLANTING TEETH.

BY W. E. BROWN, NORTH ADAMS, MASS.

ON the 24th of April, 1868, a young man, C. W., called at my office to consult me in relation to three of his incisors. In a scuffle, the night before, he had these teeth knocked out by a blow,—the two central and left lateral incisors. He had replaced them as well as he was able at the time of the injury, but from the breaking of the alveolar border the teeth did not stay in their places,—protruding about two lines. The gums were considerably lacerated, and much inflamed. I administered the nitrous oxide, and with the aid of a pair of forceps replaced the teeth. I then softened some gutta-percha and moulded the same over the loosened teeth, including two of the firm teeth upon either side of the loose ones, thus forming a dental splint, which kept the teeth in their places until they became firm. I applied tincture of aconite and camphorated chloroform to the injured parts. At the expiration of five days the gums were badly inflamed, and the teeth sore. I continued the use of dilute aconite for one week longer, when the inflammation had subsided, and I removed the splint. At the expiration of four weeks the teeth were sound and firm in their sockets; but from the effusion of lymph the teeth protruded slightly from their sockets, and to avoid irritation I removed the cutting edges with a file.

Four years have intervened since the accident occurred, and the teeth remain perfectly firm, and have never given him the slightest trouble, nor have they changed their color.

*Case* 2.—In August, 1871, a young man, about seventeen years of age, came to me with alveolar abscess. I persuaded him to have the tooth extracted and replanted. He finally consented. I extracted the tooth, bringing away the sac at the apex of the root, containing pus. I cut three-eighths of an inch from the end of the root, cleansed the socket by syringing it out with dilute carbolic acid, immersed the tooth in aconite and camphorated chloroform, and replanted it. In four days the tooth was a trifle sore, but he expressed himself as perfectly satisfied. About one month afterward I filled the tooth, which remains perfectly sound and firm until the present time.

I have replanted four others with like treatment, and with good results.

# PROCEEDINGS OF DENTAL SOCIETIES.

## BROOKLYN DENTAL SOCIETY—REPORT OF DISCUSSIONS.

### Clinical Report.

Dr. Atkinson. A very instructive case, that is typical of the kind, and, I might say, classical in the character of its symptoms, was brought to me by a professional brother on Wednesday night, November 1st. As it had been under the care of three worthy gentlemen, two of them medical men and one a dentist, all of superior reputation and ability, thus entering a caveat against hasty diagnosis, I examined and found a good example of hen's-anus fistula, with ragged margins, directly behind and on a level with the left angle of the commissure of the lips, and said, simply, there are but two possible causes for the appearances present: it is almost certain that it is produced by the death of bone; but as there is the possibility of dead and dying glandular structure being the cause, we will simply make an exploratory dressing and await the morning light, for further examination and positive diagnosis. Upon examination, in the morning, of Steno's duct, which proved to be intact and healthy, and the syringing out of the sacculated fistulous tract with a solution of chloride of sodium in water about blood-heat (the strength of the solution being indicated by one-half a teaspoonful in a tumbler of water), which was now more easy by reason of the distention effected by the dressing of cotton and glycerole of thymol the night previous, a patch of carious bone was clearly revealed to the sense of touch with the end of the gold probe. The location of the patch occupied the corium of the bone from the anterior edge of the ramus, backward on the plane face for about half an inch, from a level corresponding to the bifurcation of the root of the wisdom tooth, and extending half an inch square on the external face of the ascending ramus, with carious degeneration of the flinty part of the osseous structure, reaching into the more cancellous portion of the bone. After thoroughly drying with ropes of bibulous paper, and throwing the patient well back, so as to have the diseased patch of bone most depending, with a syringe charged with aromatic sulphuric acid (full strength), the bottom of the cavity was filled so as to cover all the diseased portion of the bone and flow slightly into the soft parts above. Now the balance of the fistula was distended with a pack of cotton saturated with wine of opium, for the double purpose of soothing the parts and retaining the medicine in contact with the diseased bone. The length of this fistula was about two inches, opening on a level with the left angle of the mouth and some lines anterior to the site of the mental foramen. The efforts of nature to heal, in conjunction with the treatment received at the hands of the surgeon and dentist having charge of it previously, had produced a peculiar sacculated condition of this tract throughout its whole length, terminating in many openings. The inflammatory process had destroyed the hair follicles of the beard, and wasted the muscular and connective tissue to such an extent as to give the impression to a superficial observer that the disease was confined to this locality over the bicuspids and first molar.

That you may have some conception of the extent of the ravages of the diseased action, I will state that, upon putting the syringe into the largest fistula and discharging the contents, they not only regurgitated out of the large mouth into which the pipe of the syringe was inserted, but spun out in seven or eight other openings of various sizes, between the finger-like granulations, blue and forbidding, seeming to threaten extensive and rapid sloughing of the disgusting "ant-heap" occupying the location already named; and that you may further value and properly estimate the importance of medical practice being divided into specialties, I will give you succinctly the history of the case as given to me. The first surgeon advised poulticing; and, upon its pointing at the site already named, it was opened externally and pronounced cured. In the course of time, however, it began to enlarge and swell the whole side of the face, whereupon, it being inconvenient to see the surgeon previously consulted, another was seen, who repeated the poulticing, and opened the abscess near the old place, and, with some constitutional treatment prescribed, the patient was again dismissed, with the assurance that nature would take care of it. Six weeks proved that a fallacy; and the dentist was consulted, who opened and dressed it for a few days, when it healed on the surface, and hopes were entertained that it was cured. This also proved untrue; and the patient, calling again upon the dentist, was brought by him to me, as previously stated. The next day, upon introducing a probe into the fistula and a finger into the mouth, the direction of the fistulous tract was clearly revealed; also, the thinnest point of the wall of tissue proved to be immediately over the crown of the wisdom tooth. After washing thoroughly with the solution of salt in warm water, and removing the contents by dry bibulous paper, upon which there was no evidence of discharge, the sac was opened into the mouth at this thin portion of the wall, the cut being distended with a pack of cotton wet in the glycerole of thymol, to establish direct communication with the carious patch. After cutting away the corrugated and forbidding granulations, so as to effect smooth points of union and even surface, the external fistula was dressed with strips of Husband's plaster, and a coating of collodion applied over it. Upon the return of the patient the next day, and the removal of the pack of cotton, easy access with the syringe was now had, the use of which revealed the fact that the external fistula was closed, no water or other fluid distending or passing through it. Daily dressings with salt and water, drying out, and injecting with glycerole of thymol in solution (from two to six parts of water to one of glycerole of thymol), in conjunction with constitutional treatment, gave promise of rapid recovery. About this time granulations and plasm broke down, and showed evidence of degeneration immediately at the margin of the diseased bone, which I had hoped had been completely dissolved, but was not. The aromatic sulphuric acid was again used, and the dressings daily resorted to for four weeks, at which time a necrosed portion of the corium of the bone was clearly revealed and thoroughly removed by the use of conical and oval burs, driven by Green's pneumatic burring-engine. After cutting down well into the living bone, washing out thoroughly with the syringe and the salt water, the parts were well dried with ropes of bibulous paper, and the chasm filled with the aromatic sulphuric acid. From this time granulations progressed satisfactorily, and the case does not reveal its former condition by any loss of substance at the site of the carious portion of bone. About the 10th of January, a new point of interest manifested itself,—that is, the scar tissue (in the external portion of the tract, that had healed nicely, and organized by an abundant supply of blood-vessels) began to change color from the deep red, becoming paler day by day, which was finally detected as fatty degeneration of the cicatricial tissue. Upon cutting through the pellicle, this atheromatous substance was removed in a semi-fluid, oleaginous mass, which left an open chasm, running up half an inch toward the malar bone, and down one-third of an inch toward the mental foramen, of club shape, the size of a small quill. These two pits were dressed with glycerole of thymol (full strength), and rapidly filled in with new granulations, which remain to this date (March 12th), assuming more natural appearances at each observation, and it would require close inspection to detect it as scar tissue.

John C. Wyman, *Reporter.*

## NEW YORK ODONTOLOGICAL SOCIETY.

At a meeting of the Odontological Society and their guests, held April 16th, 1872, at the residence of Dr. E. A. Bogue, the following preamble and resolutions were unanimously adopted:

The intelligence of the death of Dr. Royal W. Varney comes to us with a tone of sadness and a weight of sorrow which attaches to but few names in our profession.

A man of rare simplicity of character, of eminent ability in all that pertained to his profession, generous, impulsive, ambitious, and on the threshold only of a career in which all the energies of his life were enlisted to their fullest tension, and by his own zeal inspiring and prompting those with whom he associated, his death brings to us a reality of loss equal to our estimation of him as a friend and associate.

Therefore the society desires to offer as its tribute to his worth the following resolutions:

*Resolved*, That the society as a body attend the funeral of Dr. Royal W. Varney.

*Resolved*, That in remembrance of him the members wear the usual badge of mourning.

*Resolved*, That the secretary be instructed to forward to his widow and family a copy of these resolutions, and also that they be forwarded to the dental journals for publication.

William E. Hoag, *Recording Secretary.*

## FIRST DISTRICT DENTAL SOCIETY OF NEW YORK.

This society met March 5th, President Atkinson in the chair.

Dr. J. S. Latimer read the following paper on the subject of the evening, "The Relative Value of Tin Foil as a Material for Filling Teeth."

Dr. Northrop. I use tin a great deal in frail teeth; sometimes, also, in small cavities on the proximal surfaces of bicuspids. In some cases I prefer it to gold. I use it almost entirely for the temporary teeth.

Dr. Bogue. There seem to be two kinds of tin foil, one being bright and the other dull in appearance. I have noticed considerable difference in the working qualities of each,—the bright being much the best. It seems to possess some cohesive properties, and I am almost disposed to make the statement that we can make slightly contour fillings with it.

Dr. J. S. Latimer. With the squares I speak of I have made contour fillings that have seemed to answer a very good purpose.

Drs. Bogue and Perry gave an account of a recent visit to Baltimore to observe Dr. Arthur's method of separating teeth. A description of his instruments was given, the important feature being that their cutting edges were at right angles.

Dr. Kingsley. The edges of instruments for cutting or planing iron are made nearly at right angles, while the other extreme is, of course, better fitted for cutting soft substances. You can get a sharp edge on an instrument made at right angles.

Dr. Fitch. What is the proper treatment for poisoning of the alveolar process by arsenious acid

Dr. Bogue. Excision.

Dr. Atkinson. Cut the process away as far as it is infiltrated with the poison. Cut down to unmistakably healthy bone, close the gum, and treat with chloride of zinc, forty grains to the ounce, and there will be success.

If you are afraid, let it alone until you have studied your anatomy. In peeling up the soft parts, save every blood-vessel involved.

If you have a case of periostitis, put a string around the tooth, tell the patient to pull steadily, and then drill up the root canal till you get through. Carry the war into Africa. But be careful not to go through the side of the root. You then have a fresh wound, which can be treated as such.

S. G. Perry, *Secretary.*

## MAINE DENTAL SOCIETY.

The sixth semi-annual meeting of the Maine Dental Society was held in Portland, February 20th and 21st.

Dr. Henry Leavitt, Vice-President, in the chair.

The following subjects were discussed: "Treatment of Deciduous Teeth of Six-year-old Molars;" "Preservation of Teeth with Exposed Nerves;" and "Alveolar Abscess."

Drs. O. P. Macalaster, D.D.S., of Portland; Henry J. Dorr, of Portland; George M. Twitchell, of Bethel; and Charles P. Sawyer, of Dexter, were elected active members of the society.

Adjourned to meet at Augusta, in August.

E. J. Roberts, D.D.S., *Secretary.*

## CHICAGO DENTAL SOCIETY.

At the annual meeting of the Chicago Dental Society, held April 1st, 1872, the following officers were elected to serve one year:

*President.*—Dr. J. N. Crouse.
1*st Vice-President.*—M. S. Dean.
2*d Vice-President.*—A. W. Freeman.
*Recording Secretary.*—E. D. Swain.
*Corresponding Secretary.*—M. W. Sherwood.
*Treasurer.*—C. R. E. Koch.
*Librarian.*—J. B. Bell.
*Executive Committee.*—Drs. Cushing, Sherwood, and Dean.

E. D. Swain, *Secretary.*

## SOUTHERN DENTAL ASSOCIATION.

THE fourth annual meeting of this body will be held in Richmond, Virginia, commencing on the last Tuesday in July, 1872, at ten o'clock A.M. O. J. BOND, *Recording Secretary.*

# CLINICAL REPORTS.

## UNIVERSITY OF PENNSYLVANIA.

SERVICE OF JAMES E. GARRETSON, M.D.,
LECTURER ON SURGICAL DISEASES OF THE MOUTH.

REPORTED BY DE FORREST WILLARD, M.D.

### PHOSPHOR-NECROSIS.

GENTLEMEN,—I bring to your notice to-day an instance of a disease of the lower maxillary bone, which is only found in those persons who are employed in the manufacture of lucifer-matches. It is a case and form of necrosis caused by oxidized phosphorus introduced into the mouth and dissolved in the saliva, uniting there perhaps with one of the alkaline salts which are so constantly present. These fumes probably consist largely of phosphorous acid; by admixture with air they might be easily converted into phosphoric acid. It is possible also that pure phosphorous vapor, or hypophosphorous acid, and even phosphoretted hydrogen, are present, although the latter oxidizes quite slowly.

To these dangerous fumes the dippers and dyers in the match manufactories must be constantly exposed, and it is exceedingly important that some means be employed, if possible, for the prevention of this terrible resulting disease. This, it is thought, can be done by thorough cleanliness and ventilation, together with the use of a well-constructed *respirator*, so fastened to the head and arranged that no air can enter the mouth or nose without passing through a cloth diaphragm saturated with carbonate of lime or soda, or a layer of fresh-slacked lime and sulphate of soda. A teaspoonful of magnes. carb. each morning would be a useful adjunct prophylactic. An ammoniuretted atmosphere would also be of service. There is another important condition which must not be neglected: it is said that this disease has never occurred except in persons affected with dental caries; a statement which may be indorsed by the fact that a carious cavity would open a more direct route to the pulp, and thus to the periosteum. How important, then, that every tooth should be carefully watched and filled! If you ask me how phosphorus produces its destructive action, I can only answer that I do not know. It is, however, a well-known fact, that it is a destructive. Salter, I believe, suggests that the substance accumulates upon the periosteum, and generates a chemical superphosphate which is incompatible with bone life.

[If the reader wishes to consult in regard to the cause and course of this disease, matter may be found in Von Bibra and Geist's work, "Phosphorzündholzfabriken," etc., Erlangen, 1847, or *Brit. and For. Med.-Chirurg. Rev.*, 1848, or Bristowe, "Fifth Report of the Medical Officer of the Privy Council, London, 1863.—De F. W.]

The first symptoms of phosphorus disease are scarcely distinguishable from ordinary necrosis or caries. There is, first, toothache in the carious organ, then periodontitis, lifting the tooth from its socket to such an extent as to render occlusion of the jaws a source of much pain; then swelling, and puffiness of the gums, extending to the cheeks, which swelling is not open and frank, as in ordinary inflammation, but is debased and unhealthy in all its appearances. The bone dies, suppuration takes place, pus is discharged, either riddling the gums or burrowing through the cheek and down the neck; the teeth loosen and fall out, and the general constitution is apt to become seriously affected.

The lower jaw is most frequently implicated in phosphor-necrosis, and in it the destructive process usually goes on until the whole body is destroyed, the rami alone remaining. In the upper maxilla the line of demarkation is not apt to be so definite, and one cannot with as much assurance prognose as to the extent of its ravages.

The periosteum, which seems to resist the enemy longest, meanwhile has set to work with increased vigor, and has attempted to wall off or inclose the dead and dying portion with new bone, so that by the time separation has occurred it lies in a gutter of osteophytic incrustation,—which, however, supports it only upon its sides and from below, the new bone very rarely overlying the sequestrum. It is therefore only held in position by the soft parts, and can the more readily escape internally. This process of death and separation is an exceedingly chronic one, occupying a period of from eight to twelve months, or even longer. As the soft parts become implicated and break down, the bone is exposed as a dirty, grayish-black mass, while the exceedingly offensive nature of the discharge constantly tends to weaken the patient by poisoning the very air he breathes. If he has the strength to endure the process, the surgeon may, at the end of the above-mentioned time, lift away the dead portion, and recovery occur with perhaps but little perceptible deformity.

The patient before you is now passing through this ordeal of exfoliation. The earlier symptoms have all disappeared, and you will see she has a lower jaw which is greatly thickened and diseased, while the gum is a mass of spongy, sinus-riddled, angry-looking, sloughing tissue. Many of her teeth have fallen, and she informs us that the unhealthy condition of the opposing cheeks is due to the irritation excited by their angularities. I pass a probe, and find dead bone at every point; but the sequestrum is not yet ready for removal. But you will ask, How do I know that it is not ready? In the first place, the disease has progressed but for five months; and secondly, I find the bone immovable. But here let me warn you that a sequestrum may be so caught and held in this gutter of new material that it may be retained long after separation has really occurred. How will I know this? If it is simply confined by soft tissues, although it may seem firm, yet strong pressure will show that it is yielding and springy, while if still retained by bony bonds it is fixed and immovable.

The course of the disease is quite different in the two maxillæ. In the lower, which is the one most commonly affected, a certain portion seems from the very first predestined to die,—*i. e.* all in front of the rami (occasionally the entire bone),—and thep rocess goes steadily on, regardless frequently of all interference, until the result is reached. Then, if the system has been competent to endure the drain, the sequestrum may be taken away, and recovery occur, a supplemental bony representative remaining, which quite effectually aids in edentulous mastication and preserves the contour of the face. In process of time, however, the new bony material shrinks and may be in part absorbed, so that considerable deformity sometimes results, but the disease rarely returns.

In the upper jaw, however, the course is more uncertain, yet more under the control of the surgeon, since it is not so formidable in its character nor extensive in its destruction. The course is also slow, and the perceptible signs are sometimes insignificant, the surrounding parts seemingly sympathizing but little in the disease. In some cases, however, the ravages are very great and the mutilation terrible, especially as there is always a decided tendency to recurrence, unless caution is observed in fortifying the constitution against the assaults.

Even when the entire lower jaw, together with its periosteum, has been removed, it has been found that a new formation contracts such ligamentous attachments to the temporal bone that joint movement is secured, and it is quite possible that the performance of function through the means of artificial teeth might render an osseous growth a probability.

Such are some of the leading features of this much-to-be-dreaded disease. Can we arrest it after the bone is involved? Doubtful. A certain portion of the bone seems inevitably doomed. Can we do any particular and certain good? Yes. We can support the patient under the drain to which he or she is to be subjected, hasten the process of death and separation of the slough, and sometimes (in the upper jaw certainly) diminish or circumscribe the advancing disease.

In all cases of toothache in matchmakers, be on your guard; in fact, any patient employed in that occupation should always be informed that every cavity in his teeth *must be kept well filled.* If seen in the acute inflammatory stage of periodontitis, the diseased and elevated tooth may be protected from the opposing organ by moulding over some opposite prominent tooth a little cap of softened gutta-percha, which, when hardened by cold water, will receive the first stroke of the closing jaws. This, with antiphlogistics, may relieve; but if the inflammation goes on, it is not safe to delay. Active means must be adopted, and the underlying periosteum and bone immediately relieved by full and free incisions made boldly down through the gums upon the bone. This is far better than any leeches or local applications, as it takes off tension and gives the most favorable conditions for arrest. At the same time it is wise to remember that the phosphorus-poison may yet be susceptible of partial neutralization by means of magnesiæ carb., of which a teaspoonful should be given twice a day, a little of the same being constantly applied locally to the diseased spot. I say susceptible of partial neutralization, for I have not yet discovered that any known treatment will cause a complete arrest of the disease. We should give our attention also to constitutional measures at the very outset, as this is the only time when we may hope for any benefit in attempts at resolution. Iron, quinine, cod-liver oil, and stimulants may be vigorously pushed for a few weeks; but if the case runs on, as it usually will, it is better to decrease them at the end of this time and depend chiefly upon nourishing, hearty food. The disease is to be one of long duration, and it is not desirable to load the stomach with drugs for a period of ten or twelve continuous months, especially as the time will come, in the later stages, when every means may be necessary to save the strength and even life of the sufferer.

Should the disease extend, we must hasten its progress. This may be done by giving free vent to the pus internally, thus saving integumental openings, and giving the opportunity for frequent syringings with dilute solution of permanganate of potash, or carbolic acid, or phénol, or, better than all, the tinct. capsici comp. with an excess of myrrh, or Labarraque's solution with addition of a little potass. permanganate. When the patient is unable to gargle, a sponge mop should be used to draw away all the discharges; but under the most careful treatment much pus will find its way into the stomach.

I have told you that the periosteum resisted the onslaught of the disease longer than the bone itself, and it has therefore been my practice for a number of years to hasten the process of separation by inserting little pledgets of cotton into the wound, which, gradually insinuating themselves into its depths, work off the already separating tissue from the bone, thus leaving it bare and unsupplied. But you may object "that this would only tend to render the sequestrum still larger than if left to its common course." I assure you that such is not the case, but that a portion of the bone, being already predestined to die, has the death markedly hastened, by which means valuable time is saved, to the good of the patient's constitution.

Your endeavor should always be to compel the discharge of pus into the mouth, since sinuses opening upon the neck are difficult, and often impossible, to cure, so long as the cause of discharge continues.

Cleanliness is all-important. And in the later stages every means of sustenance are absolutely essential—the most generous diet, the strongest tonics, the purest stimulants, are all required; and even these may not prevent the vital force of the patient from yielding, until it sinks under continuous hectic, and sometimes with tuberculous complications, or it may be with sphacelus of the neighboring soft parts.

Hemorrhages should be checked, since they tend to exhaust further the already weakened constitution.

The teeth should be removed as fast as they loosen.

In regard to the time for removal of the sequestrum, supposing that the patient has had strength to complete this work, you are to wait until nature has made the separation,—be it few or many months,—with no further interference than I have already portrayed. Operative procedures are seldom productive of anything but harm, for, even if not fatal, an inflammatory sequestrum usually forms at last, which is but an additional drain. I well remember a girl whom I treated for months in this city, warning her from the very outset that she must have most unbounded faith and patience,—two things, by the way, which are very difficult to maintain when one sees herself steadily getting worse and worse, month after month, and with no words of encouragement for the immediate future. At the end of the seventh or eighth month, although progressing as well as she possibly could, she became very uneasy, and, finding that I persisted in my determination not to cut away the sequestrum, sought other advice. The jaw was resected through the rami, and in ten days she was in her grave. She died of pyæmia. And why? Because the bone was in such a soft, spongy condition, between life and death as it were, that it sucked up the pus which necessarily bathed its opened cancellous structure, and poisoning was the result.

This is but an example of what has been a common experience, and I have cited the case to make you cautious of interference.

Learn, then, to wait, no matter how long, until this sequestrum is loose, when no such risk is probable. I have already told you how you will know that this process is completed; therefore do not err upon either side.

In lifting away a necrosed portion, it is seldom necessary to make external incisions, its removal, even if an entire jaw, being effected quite easily from the inside by simply enlarging the openings which you have previously made along the gums during the treatment.

It is usual to take out the inferior jaw by sections, when the entire body is to be removed, so that it becomes necessary to split the bone at the symphysis. This may be done with chisel, saw, or, preferably, cutting bone forceps, making several clips to sever the bone rather than one bold cut. Once divided, the pieces can be lifted out, unless they are confined by overlying osteophytic structures, or, more generally, by indurated and thickened soft parts. I have spoken to you of the *springy* condition which would characterize such a retention, so that I think you would not be deceived, although it is a quite common mistake. The dead portion being fully removed now at its full term, as we may call it, there is but little danger of a return of the disease, provided due care be used. The occupation should be changed, good air insured, and syringing with water medicated with iodine and creasote constantly practiced. The large amount of new material which usually exists, almost forming a bony floor to the mouth, need not give you any concern; nature is fully able to take care of it.

In the upper jaw necrosed portions may be removed much sooner, since there is no definite point at which the action will cease, and there is less danger. The tendency to recurrence here is, however, very great.

[The patient was now put under the above-mentioned treatment, and warning given that no immediate improvement need be expected.—De F. W.]

# EDITORIAL.

## DEATH ALLEGED TO HAVE RESULTED FROM THE INHALATION OF NITROUS OXIDE GAS.

The recent sudden death of a patient in the office of a dentist in the city of New York has excited considerable comment in the papers of that and other cities, and furnished a text for various articles in the medical journals. We have received a number of communications on the subject, and numerous inquiries for the precise facts in the case.

From a pamphlet issued by Dr. Newbrough, at whose office the event occurred, we make the following summary of the evidence before the coroner's jury. Dr. Newbrough testified that the patient, a middle-aged lady, desired the extraction of seven or eight front teeth which were *loose*. Dr. N. advised that their removal would be so easy that an anæsthetic would be unnecessary; but the patient insisted that she could not submit to the operation without it. Dr. N. then procured a *six*-gallon bag of gas, but the patient seemed about equally fearful of anæsthesia and pain, and, as soon as she had made an inhalation, rejected the bag, and declared her willingness to have the operation performed without it. At sight of the forceps, her courage again failed her, and she decided once more to try the gas. She took one inhalation, and again rejected it. By this time so much of the gas had escaped from the bag, that the doctor replenished it. Of this she took two inhalations, and peremptorily refused to have anything more to do with it, declaring her determination to submit to the operation. The teeth were then extracted "Immediately," says the doctor, "she *fainted*, her head dropping over sideways." The face rapidly became livid, and finally purple, respiration falling to about fifteen per minute. In about *thirteen* minutes, notwithstanding the prompt application of the galvanic battery, and efforts to assist respiration, death ensued. The muscular system was entirely relaxed throughout, and after death the face became instantly blanched.

Dr. Otis, summoned by Dr. N., and arriving in about ten minutes after the fainting, testified that he continued the usual restorative treatment for *forty-five* minutes, when death ensued. At *post-mortem*, found no disease of heart; brain perfectly exsanguinated in every part; no fluid in any of the ventricles. One lung was more engorged than the other, but healthy. No opinion as to the cause of death.

Dr. Britton testified as to the healthy condition of the body, except that one lung was congested; the brain was in a normal state; judged from the condition of the lungs that death resulted from asphyxia, but could not express an opinion as to the cause of it.

Dr. Buchanan testified that the lungs were congested; the right lung bound down by old pleuritic adhesions; the congestion was *post-mortem;* believed that death was caused by nervous shock from the extraction of the teeth; the inhalation of the gas might have acted as a predisposing cause; the upper lobes of the right lung presented appearances of pneumonia; nitrous oxide gas is not stimulating.

Dr. Endermann, under instruction of the coroner, had inspected the apparatus of Dr. Newbrough; found that he used but one wash-bottle; believed the apparatus unfitted for the preparation of pure gas; did not have an opportunity to examine the gas of which the patient had inhaled, as Dr. N. had allowed it to escape, and filled the reservoir with some freshly made; witness made gas with the same apparatus, which was pure; the bag used holds about *four* gallons, with no exhaling valve.

We give the verdict entire:

"We find that Mrs. Ann O'Shaughnessy came to her death from asphyxia or apnœa, as evidenced by the symptoms manifested by the patient before death and the conditions found at the *post-mortem*, the asphyxia having, in our opinion, been induced by the inhalation of gas administered.

"The jury further agree in the opinion that any other than the prescribed method of preparation of nitrous oxide gas as to temperature for generation and appropriate washing-bottles, is to be regarded as a careless method of manufacture. In this particular we regard the apparatus used by Dr. Newbrough as imperfect.

"Furthermore, we regard the administration of nitrous oxide gas as reckless where such administration is an experiment upon the patient, which it must be where there is not a positive certainty as to the chemical purity of the gas, and ignorance in the administration of the physical condition of the patient, and the physiological effects manifested by anæsthesia.

"Furthermore, we regard it as necessary for safety that an administrator of nitrous oxide gas should have a knowledge of the application of restorative agents adapted to alarming conditions in anæsthesia, and be always supplied with such agents"

(Signed) Stephen Rogers. M.D.; Faneuil D. Weisse, M.D.; Richard J. O'Sullivan, M.D.; Albertus L. Vandewater, M.D.; Augustus Wahlfarst, M.D.; Edward Frankel, M.D.; Franz Henel, M.D.; John T. Nagle, M.D.; John T. Kennedy, M.D.; and Frederick W. Lillienthal, M.D.

It will be seen that the testimony is somewhat discordant in several particulars, and that the verdict is not in accordance with the evidence.

But these discrepancies are slight, compared with the statements of Dr..N. and others, which charge downright falsehood upon one of the witnesses. Dr. N. says, "Dr. Endermann never examined the apparatus; made no gas with it; did not attempt to do so;" that the statement that he did not have an opportunity to examine the gas of which the patient inhaled, because it had been allowed to escape, was false; that it was used up in the regular way during the next day, Dr. Colton having inhaled some of it on the following morning and pronounced it excellent.

On the facts, however, above quoted, our correspondents are vastly more at variance in their theories than is the evidence before the coroner's jury. If we accept these theories, we shall learn: That nitrous oxide gas is not a stimulant, and consequently could not have produced congestion; and that it is a powerful arterial stimulant, and produces rapid arterialization, and therefore could not produce congestion; that it produces stasis in the capillary vessels, and also intensifies capillary circulation; that it produces anæsthesia by depressing the nervous system, and also by an intense stimulation of the nerve centres; that its effects are to be accounted for by the fact that it produces an intense oxidation in the nerve centres, as well as by the fact that it arrests oxidation by depriving the blood of its proper supply of free oxygen in the lungs; that it suspends cerebral functional activity, thereby producing anæsthesia, and that it over-stimulates the functions of the brain, causing a temporary paralysis; that it changes all the blood in the body to arterial, and that it changes it all to venous blood; that, like carbonic acid, it is an asphyxiating agent, and that it is the specific remedy in asphyxiated conditions; that it would have relieved the patient, had she inhaled it, from the tendency to congestion, but that where a tendency to congestion exists, its administration may develop this latent condition with fatal results; that it is the admixture of atmospheric air with the gas which produces ill effects, and that, when mixed with air in proper proportions, it gives the happiest results; that it owes its anæsthetic effects to the formation of carbonic acid gas in the system faster than it can be eliminated, but that a careful analysis of the expirations during its administration shows less than the usual per cent. of carbonic acid in expired atmospheric air,—other equally reliable analyses showing, however, more than four times the usual amount; that it is the absorption by the blood of the oxygen in the inhaled gas which must account for its characteristic effects, and yet that, when breathed and rebreathed, until anæsthesia is produced, the loss of its oxygen is hardly perceptible; that the gas must always stand one or two days over water before it is fit for use, and that it has stood thus is sufficient to account for any ill effects it may produce; that it is not fit for use unless freshly made, and that the longer it is kept the better it becomes.

In view of these discordant theories, it may seem presumptuous to express an opinion; but the conviction of the writer, based on personal experience, repeated hundreds of times, as well as on observation and reflection, is that nitrous oxide, when inhaled, acts primarily by a specific stimulant effect on the centres of innervation (over-stimulation, and consequent depression, if continued), and secondarily by *preventing* the oxygenation of the blood.

The various opinions held by different observers doubtless owe much of their diversity to the considerations of the phenomena presenting at different stages of the toxical influence of the agent.

That the inhalation of nitrous oxide continued, produces by some method of action, no matter what its primary effect, progressive depression of vital functions, which tends to death, and in which the anæsthesia, or temporary unconsciousness sought, is a more or less clearly-defined step in the downward path, there is no doubt.

Without discussing the processes of its manufacture, or the means by which its purity may be determined, or the best methods for its administration, suffice it to say, that immunity from danger can at the best be assured only by an intelligent and watchful guard, that its exhibition be suspended while yet the centres governing respiration and circulation are not too profoundly impressed.

Of the case under discussion, the inference seems entirely justified, that death was not caused by nitrous oxide gas, for the simple reason (if the evidence can be relied upon) that not enough was inhaled to produce such a result on any theory of its action. Nor was there any fact established by the *post-mortem* to justify such a conclusion; while the testimony renders it entirely probable that the cause of death was nervous shock, from dread of pain, and apprehension of fatal effects from the inhalation of an anæsthetic agent.

It may be remarked, however, that an examination by the coroner as to the possible lodgment of an extracted tooth in the air passages, would have eliminated that from the list of uncertainties.

# PERISCOPE.

## SELECTIONS AND ABSTRACTS FROM DENTAL AND MEDICAL JOURNALS.

Effects of Diet on the Teeth.—In defending the dental organs against the attacks to which they are liable, it is important to know in each case who is the enemy, and what his mode of warfare. The commander of a fort would not adopt the same plan of defense when attacked by a red man of the forest as when a British regular is his enemy. So we, when we examine the mouth and the general constitution of our patient, should be able to devise a line of defense adapted to the mode of attack. For example, when we examine a mouth and find the mucous membrane flabby and relaxed, the buccal fluid ropy, "oily," or tenacious; in short, when the proportion of mucus is greatly in excess, the local danger to the teeth is the action of nitric acid, resulting in white decay. Now, if we fill the carious cavities without correcting this state of affairs, unless the patient uses the utmost care, and often when he does, we find decay goes on around the borders of the plug. Ignorance of what is duty in these cases, or indifference in regard to it, often results in failure, and a consequent discredit to our profession, even when the manipulations may have been up to the highest style of our art. A patient in the condition described should live mainly on a farinaceous diet. The food should be rich in carbon, but not at all rich in nitrogen. Of course, then, lean meats, eggs, cheese, etc. are to be avoided.

Let us examine another mouth, and we may find the membrane nearly normal in appearance, the fluids of the mouth perfectly liquid. If, on applying test-paper, we find an acid reaction, in most cases the acid is the hydrochloric. Dissolve a little of this saliva in pure water, even if it is neutral, and add a few drops of its solution to a solution of nitrate of silver. If any soluble chlorides are present, there will be a whitish precipitate. In this case the danger is not from nitric, but from hydrochloric acid, and the caries, when it appears, will not be the white, but a variety in which the earthy matter of the tooth is dissolved out, while the organic, in great measure, remains. A patient in such condition should not indulge in salt foods to any great extent, but should very freely use fresh vegetables, milk, etc.

When a patient comes to us fat and flabby (of a lymphatic temperament), rather gouty or rheumatic, and especially if he uses tobacco, we may expect his buccal fluids to contain lactic acid. This acid dissolves, with about equal facility, the animal and earthy constituents of the tooth, producing what is commonly called "chemical abrasion." It makes clean work as it goes; and if you don't believe it, examine my eye teeth. This acid is often found in the mouths of chronic tobacco-chewers. Such a patient should mainly abstain from milk, cheese, sugar, and vegetables containing it; in short, from all substances likely to take on the lactic acid fermentation. He should indulge in lean meats, brown bread, cracked wheat, etc.

There is yet another variety of caries known as the black decay; and it is produced by the action of sulphuric acid. When the breath is loaded with sulphuretted hydrogen (or hydro-sulphuric acid, if you like the name better), you may expect to find this variety of dental caries. This is the least disastrous of the four varieties. The tendency to it is to be overcome by avoiding the use of food containing sulphur. Onions, eggs, beefsteak, etc. should be but sparingly indulged in.

Now, I have been able only to give a general hint in this direction; but I hope we will reach something practical in regard to the education of ourselves and our patrons in the care of the teeth.—*Dr. Walt, Mississippi Valley Dental Society, Dental Register.*

RUBBER DAM FOR DIFFICULT OPERATIONS.—All who have used rubber dam will doubtless agree as to its efficacy in difficult cases, especially in very wet mouths. But in many such, where it is most needed, I find it quite difficult, and often impossible, to apply and hold it in position during the operation. For example, we may have a cone-shaped wisdom tooth with a proximal cavity extending below the free margin of the gum. There will be no difficulty in carrying the dam down to the gum, but when the ligature is forced beyond that point, in order to reach the neck of the tooth, where it can be made fast, it will invariably pass between the tooth and the dam, leaving the latter just at the margin of the gum.

I find a very good way to overcome this difficulty is to prepare the dam in the usual way,—punching one or more holes, as the case may require,—thread a needle with floss-silk, well twisted and waxed; put the dam on the stretch, making the hole assume about the size of the tooth to be filled, and with the needle lace the edge so as to form a draw-string of the ligature. (This may be carried a part or all the way around the hole, as the necessities of the case may require.) Now, when the ligature is forced down under the margin of the gum in this way, it will carry the dam with it. The ligature may then be carried around the tooth a second time, and thereby render it more secure.

I sometimes find it necessary to fill the cavity with Hill's stopping first, in order to carry the ligature and dam below the abrupt termination of the cavity at the cervical wall; and after it is tied securely, the temporary filling can be removed and the permanent one introduced. By careful manipulation the temporary filling can be "built out," so as to aid in "drawing on" the ligature.

By the foregoing method I have been able to protect and fill thoroughly cavities that could not possibly be filled in the ordinary way.—*Dr. R. T. Hampton, in Dental Times.*

A NEW METHOD OF HARDENING RUBBER.—The plate to be hardened or vulcanized is flasked in the usual manner, the same apparatus being used as for steam. The difference is simply this:

I use ammoniacal gas instead of the steam. The gas is formed of equal parts of chloride of ammonia and hydrate of lime,—common lime slacked in a covered vessel. For a single case vulcanizer, fifteen or twenty grains of each ingredient, finely pulverized, should be placed in a tin box, sufficiently perforated with small holes to allow the gas to escape freely, which will generate very rapidly from about 60°. Place the box in the vulcanizer with the flask and apply the heat in the usual manner, allowing about half an hour for the mercury to rise to 320°, so that the gas may have time to penetrate the plaster; then vulcanize for fifteen or twenty minutes' time. The above time will harden the same rubber that requires by the old process an hour and a half, and, I believe, leaving it in a much better condition for the mouth. The chlorine of the ammonia, being set free, becomes a powerful disinfectant, removing the bad effects of the sulphur and coloring matter of the rubber, and, I find, without injury to it.

The gas can be formed by other means than herein stated, but I believe this to be the best method, and, taking time into consideration, it is cheaper than water. It costs but a trifle to procure the ingredients used, and in large establishments for hardening rubber goods, the gas can be converted into spirits of ammonia with a profit. I intend to introduce it as a medium for hardening rubber for all purposes. In regard to the vulcanizer, one made of iron, costing two dollars and fifty cents, would be better than the copper ones now in use, from the fact that the gas acts on the copper; but this can be prevented by oiling the vulcanizer before using, and cleaning afterwards. It is well known that ammoniacal gas is not explosive nor inflammable; in this respect it is safer than steam.

The flasks should be perforated, top and bottom, and in fact all around, to allow the gas to penetrate the plaster. For a close flask, about thirty grains each of the ammonia and lime should be used, producing a greater volume of gas and consequently more condensed and more penetrating. Ammonia preserves iron, and consequently that would be considerable of an item to dentists, and, in fact, to all who harden rubber.—*Jas. E. McCabe, Mo. Dental Journal.*

ON THE USE AND MISUSE OF OXYCHLORIDE OF ZINC.—This useful material, like most new things, has been worked too much and used in numerous cases for which it was ill fitted. It has run the usual course; had wonderful success at the beginning, has been taken up with great self-congratulation and complacency by men who feel no confidence in their powers as gold stoppers, been much lauded as looking so remarkably nice in front teeth, and as giving little or no pain to the patient. But the experience of a very short time has removed the gilt from the gingerbread, dispelled all these flattering delusions, and restored a good many idle young practitioners to a sense of work and painstaking. Reaction has set in, and now comes the danger of the other extreme—the rejection of a really valuable addition to our resources, and a most useful adjunct when used with discretion and prudence. The object of these remarks is to point out when and where white stoppings may be used with success, and *vice versa.* In the first place, to avoid disappointment, all patients should be given to understand that these fillings are but temporary, and used because a better material is not likely to succeed *under the circumstances.* To begin with children; there are many whose teeth are so sensitive, and whose limbs are so restless, that it would be a loss of time and material to attempt to put in good gold stoppings. The temporary molars (central cavities, particularly when large) do well with the white stoppings, provided you can keep the mouth dry for a short time till the material is set. In permanent teeth, also, where the little ones are very young and frisky, it is well to put in these stoppings to last a few months, after which it will be found that the sensitiveness has considerably decreased. I advocate this treatment because many years' experience with young children has taught me that, by prolonged and severe operations, you give such a shock to these tender plants, that forever afterwards they look with horror on a dentist, and never enter the doors of one till they want artificial substitutes. These white stoppings harden the dentine, prevent further decay for a time, do not discolor the teeth like amalgams, and enable you to gain the confidence of your young patients instead of driving them away forever. There is nothing, so far as my knowledge goes, which seems to do so well and to give so little pain in cases where the nerve is almost exposed. In very large cavities in molars, the walls of which are standing and but little more than the enamel left, and that perhaps not very strong, it is most valuable. In cases of this kind the oxychloride should be mixed thin and applied carefully to the walls; then dried with a piece of papier Joseph pushed into the cavity, and completed with a stiffer paste. A stopping of this kind bears mastication very well, does not dissolve from the fact of its being constantly washed and kept clean from deposit of any kind, and often does better and longer service than would be got from a more expensive operation. If the sides of teeth of this description don't give way during the introduction of gold; from the expansion of the large quantity of metal they will often break down soon afterwards, and cause great disappointment to the person who has endured so much both in body and purse. In doubtful cases, when great tenderness is present, it is much safer to stop with this material, wait a few days, sometimes weeks, and finish with gold, when all danger of inflammation is past. The teeth of pregnant women are often exceedingly troublesome, and liable to severe pain upon the slightest provocation. A white stopping will answer when no other would, until they are in better health. Amalgams, often used in cases of tenderness, do worse than anything, and almost invariably entail no end of trouble upon both dentist and patient. To remove an amalgam stopping from a sore and sensitive tooth after a night of suffering, is an operation the performance of which I envy no man. Oxychloride of zinc stoppings should never be put in small cavities, and they will not last, as a rule, in any situation that is not washed and kept perfectly free from deposit. In the sides of bicuspids and molars they may look very well for a time, but after a few months, in passing a probe just along the margin of the gum, it will most likely drop into a cavity, although the upper part, where it is washed, may be quite perfect.

In large or small cavities, so common on the labial surface of the incisors and canines, when gold shows so much, and when patients (if not Americans) so strongly object to have their mouths turned into jewelry caskets, these stoppings may be tried; but, as far as my experience goes, you will either soon see the patients again or never behold them any more. Jacob's white stopping lasts much better, but is apt to turn rather yellow. Many times we have heard the cry "Eureka!" but so far it has been a delusion; my advice to young dentists is: hammer away with gold when you can get paid for it, and when you can't, use tin foil.—*J. H. Parsons, Brit. Jour. of Dental Science.*

MARSHMALLOW FOR HARDENING PLASTER.—Some few months ago I had in about 1 cwt. of best plaster of Paris from a local slate-works, having found it on all other occasions very good, but I find that this time it did not keep up its good name. In using it the teeth were constantly breaking off, from its being so very porous. I therefore tried alum, but I found that this made the case even worse, the models being full of air-bubbles. A friend of mine then recommended me to try salt (chloride of sodium), and I did so, but it made the plaster so very porous that, in removing the wax from the cast, all the teeth came off. I had read somewhere before of marshmallow (a genus of the Monadelphia polyandria) being a good thing for the above purpose, and I determined to try it, and for that purpose procured one ounce, half or which I put into a quart bottle, on which I pour boiling hot water. I use half water and half the above solution to mix the plaster to the required consistency, and since then have had no trouble whatever, the plaster being equal to Messrs. Ash & Son's best. If any of your correspondents are ever troubled with a similar case, I should recommend them to try the above as a remedy.—*F. Graham Young, Brit. Jour. of Dental Science.*

SALIVARY CALCULUS.—A girl, aged twenty, had a swelling under cover of the right angle of the lower jaw. This swelling was fluctuating; and she described it as varying in size, enlarging much, and producing a sensation of painful distention during mastication. On examination, a concretion was found beneath the right side of the apex of the tongue. The mucous membrane was divided, and two pieces of calculus were removed. Each piece was cylindrical, about the thickness of an ordinary slate-pencil; one piece was about three-fourths of an inch in length, with a pointed end towards the oral aperture; the other piece was one-third of an inch long. On examination by Dr. Bernay, the chemical constituents were found to be phosphate of lime and mucus.

A male, aged fifty, was sent to Mr. Jones with mischief said to be ranula. On examining the mouth, on the right side of the frænum linguæ, a hard swelling was found. The mucous membrane having been divided, an oval calculus, about the size of an almond, was easily enucleated.—*British Med. Journ.*

RANULA.—Ranula, in children as well as in adults, is characterized by a tumor of varying volume, fluctuating, and transparent, seated under the tongue or else in its vicinity. It is found, on anatomical examination, to be formed by a delicate transparent covering, opaque at several points, sometimes presenting several small cysts united together, some of them more developed than others—true mucous cysts. In the interior we find a viscous fluid, which is sometimes purulent. The tumor is over the course of Wharton's duct, usually communicating with it. At other times there is a cyst on the outside of the canal. Breschet found these cysts in the new-born, and we have seen them in children of a year or two of age or older.

The *cause* of ranula or grenouillette is the distention of the ducts of the sublingual salivary glands. The saliva distends the ducts, becomes diffused under the surrounding cellular tissue, and a cyst is formed. The *symptoms* are, a tumor of greater or less volume situated beneath the tongue, sometimes on one side only, at other times on both sides. There is then a double ranula, having the appearance of the abdomen of a frog, from which it derives its name. Ranula is superficial, beneath the buccal mucous membrane, and in contact with the sublingual gland. There is fluctuation, sometimes transparency, the tongue is elevated, and speech is more or less impeded. Left to itself, it sometimes increases very slowly in size, and may then attain the dimensions of a small nut, and salivation will be quite abundant. The tumor causes a prominence, and has a tendency to escape from the mouth, when the tongue is raised. At other times, instead of occupying the sublingual gland, it exists in the submaxillary gland, and has its seat in the canal of Wharton. It then lies in the submaxillary region, in such a manner that it is not seen so much under the tongue, but more deeply situated beneath the aponeurosis. Under such circumstances, the ranula is not at all of a superficial character. This latter form is met with in adults rather than in children

Ranula is an affection of but little gravity, which may become inflamed and be spontaneously cured, but in most cases it may remain stationary. Superficial ranula is less serious than that attacking the submaxillary gland; we have observed the former most frequently in children.

*Treatment.*—We usually have recourse to an operation for the cure of this disease, either incision, dilatation, excision, or the seton. The latter was proposed by Physick, and has been advocated for many years by Prof. Longier. Having employed incision and the peculiar button advised by Dupuytren to maintain a fistulous opening without success, we have decided, in adults and children, to use the seton, made of three or four silk threads, which are passed from before backward through the largest diameter of the tumor. We secure it by means of two knots, and we leave it in the mouth for at least a month. Generally, this method has been of service in children, and if we have sometimes had a recurrence, we have introduced a fresh seton, which we have left for a long time. We may quite easily perform excision and cauterization with nitrate of silver. As for iodine injections, we have not employed them; and we may say the same in regard to the removal of a flap of the mucous membrane, as suggested by M. Jobert, who, after having exposed the cyst, removes it and unites the flap by means of stitches. The complications of this difficult and especially long operation in children induce us to prefer the seton or excision with cauterization, two procedures which have given us good results.—*Guersent on Surgical Diseases of Infants, Med. News and Library.*

On Ranula. By W. Morrant Baker.—After referring to the opinion formerly entertained as to the nature of ranula, viz., that it consisted in a dilatation of the duct of the submaxillary gland, and showing, by quotations from several recent works on surgery, that this doctrine is still not without advocates, Mr. Baker gives several cases in support of the view that the disease in question is an example of independent cystic formation, and sums up "the present evidence against the existence of a connection between ranula and dilatation of Wharton's duct," as follows:

"1. There is no positive evidence of any kind, that obstruction of Wharton's duct accompanies, or is connected with, the formation of a ranula.

"2. There is abundance of proof that in cases of ranula, Wharton's duct is usually quite free; while, very commonly, saliva may be seen flowing from the duct, without any accompanying alteration in the size or other characters of the tumor.

"3. The fluid of a ranula is very unlike saliva, which may have been seen, a moment before the tumor was punctured, possessing its ordinary qualities of color and consistence, as it escaped from the submaxillary duct.

"4. The fluid contained in the common form of ranula is hardly, or not at all, to be distinguished from that of certain cysts in parts of the body in which no salivary glands exist.

"5. The symptoms of known dilatation and obstruction of Wharton's duct are altogether unlike those of ranula."—*St. Bartholomew's Hospital Reports, Am. Jour. of Med. Sciences.*

# HINTS AND QUERIES.

WHAT is the best material for filling incisors when the patient is unable or unwilling to pay for gold fillings?—JUNIOR.

WHAT is the best method of preventing occlusion of the teeth in cases of threatened periodontitis, or when for any other reason it is desirable to prevent the close antagonism of certain teeth?—SIGMA.

WHAT is the best treatment for gums which bleed at the slightest touch?—D. G.

WHAT use is made of the alloy known as platinum and iridium? Does the quality of rigidity, which it possesses to so great an extent, render its being swaged to the form of the mouth impossible, as has been asserted by some? How does it resist the action of the fluids of the mouth?—R. V. W.

HAS any one ever succeeded in making a filling of "Guillois's Cement" as hard as the specimen sent with the package? If so, please state succinctly the *modus operandi.*—J. H. S.

THE TEMPORARY TEETH.—Why does not the important subject of the management and treatment of children's (deciduous) teeth engage more of the attention of dental writers? Among all the dental periodicals that we see, we remember of reading very few articles on this subject. Why do not some of our more learned and experienced brethren, who talk so much in our conventions upon almost every other conceivable subject in dentistry, give us their experience and views upon this particular topic?—QUERIST.

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REPLY TO "ANTI-AMALGAM."—"Is there any amalgam that retains its color in the mouth, and does not discolor the tooth in which it is placed, by its own oxidation?" Precipitated palladium has for many years been used in England for making an amalgam that "retains its color in the mouth, and does not discolor the tooth in which it is placed, by its own oxidation," as it does not oxidize to any perceptible extent. Two things are against it, however: a rather dark, silver color, or more properly lead color, to start with, and its expense, which is about the same as gold.

Platinum is stated to possess the property of preventing oxidation in those amalgams of which it forms a constituent, and also of promoting rapid solidification.—SEARCHER.

REPLY TO "YOUNG PRACTITIONER."—"Why does abscess, or at least a good deal of pain, and often swelling, almost always follow the opening up of a tooth containing a dead pulp? and is there any mode of prevention?" When a tooth containing a dead pulp is opened to the atmosphere, decomposition of the remains of the pulp at once recommences; if then any fine instrument, such as is commonly used to clear pulp canals, happens to pass through the apex of the root and carry with it a minute quantity of this decomposing animal matter, a dissecting wound is the result,—the sequence is pain, swelling, generally abscess.

The surest preventive yet known, is to insert carbolic acid or creasote at once when such a tooth is opened, before any attempts are made at extraction of the remains of the pulp, and to be *sure* that no instrument is allowed to pass through the apex of the root to even touch the soft parts beyond.—Experience.

Reply to "W. C."—I offer the following as an answer to the question in the Dental Cosmos for March, 1872, in regard to preventing the dark lines showing at the junction of sections of gum teeth. If W. C. will follow these directions, I think he will find them satisfactory. Let him first grind his joints so they touch *inside* as well as outside (this will prevent chipping or cracking of the enamel while vulcanizing); then on the inside of each block grind away a very small portion, so as to leave a sort of gutter or groove, V-shaped, the whole length of the joint. After the flask has been taken apart, and all wax removed, take a piece of white thread (of ordinary thickness), and pack in the aforesaid groove, letting the ends be about three-eighths of an inch longer than the joint, then carefully press (with an excavator) these ends between the gum and the plaster, in a solid wad, directly over and at each end of the joint, *in the plaster;* then pack and vulcanize,—the ends can be easily cut off afterwards. I have used this method successfully for five years without a failure, and if properly manipulated, it can hardly be detected from continuous gum. I send this believing it will be of service to W. C. and perhaps others.

Reply to "M. C. S."—"How can gutta-percha scraps be cleaned and worked into sheets again?" Divest the scraps of wax as nearly as possible, wash in cold water to remove any plaster that may adhere to them, then plunge them into hot water, and knead with the hands until it is of a uniform consistency. Procure a piece of smooth, hard board; wet it so that the soft gutta-percha may not adhere to it, and with a piece of large-sized glass tubing, roll into sheets of any thickness desired, and you have an article superior to the original, in consequence of its having retained a portion of wax. It will continue to improve until there is an excess of wax; then it is worthless.—B.

Reply to "E. P."—In order to deposit silver upon steel, it is necessary to first coat the article with copper. The solution which I have found to answer best for this purpose is composed of

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| Carbonate of potassa, | 4 ounces. |
| Sulphate of copper, | 2 " |
| Liquid ammonia (about) | 2 " |
| Cyanide of potassium, | 6 " |
| Water (about) | 1 gallon. |

Dissolve the sulphate of copper in boiling distilled or rain water, and when cold, add the carbonate of potassa and ammonia. The precipitate when formed is redissolved. Now add cyanide of potassium until all the blue color disappears. Then filter, and work the solution warm with active battery power, using a copper anode. After the article has received a sufficient coating, it may be scratch-brushed, and is then ready for the silvering solution.—F. F.

Reply to "S."—In answer to "S.," who asks, "How shall I remove from the pulp canal the end of a broken broach?" let me make one or two suggestions. Don't try to work or hook it out with any kind of an instrument; in that way you may push it farther up and get it fast in the canal.

Pass the broach from which it was broken across a magnet until well magnetized, when on bringing it in contact with the broken end there may be sufficient attraction to draw it from the canal. If it is so fast that it cannot be removed in this way, chloride of lime, allowed to remain a few days in the canal, will cause rapid oxidization, when another attempt with the magnetized broach may start it loose and bring it out. Or it may be allowed to remain a few weeks without chemicals of any kind in the canal, when, if not too fast at first, it may be removed in the same way. I have records of several cases successfully treated in this way; the cavity of decay being loosely filled with cotton to allow the air and the fluids of the mouth to freely enter the canal. If these and other means fail, it may, with comparative safety, be allowed to remain, the canal and cavity of decay being filled in the usual way. A number that were allowed to remain in that way, I have had under observation for several years; no ill effects have followed; but I would not encourage such practice.—P.

Reply to "H. S."—A good solder for gold can be made as follows: Take 2 dwts. 22-carat gold, 16 grs. fine silver, and 12 grs. roset copper; melt together in a clean sand crucible, with a little borax. When perfectly fused, pour into an ingot mould, previously warmed and oiled. Anneal, and roll to the desired thickness, keeping it clean and bright by dropping it into diluted muriatic acid each time that it is heated,—that is, directly from the blow-pipe.

A very fair silver solder can be made by melting together equal parts, by weight, of silver coin and common brass pins; melting the silver in a crucible first, and then adding the pins. Borax must be used as a flux in melting, and *immediately* upon the fusion of the brass (otherwise the zinc in the pins will become oxidized) the amalgamated metals must be poured into the mould. For use with pure or nearly pure silver, the old silver three-cent pieces make an excellent solder.

If the above solders are kept *perfectly clean*, a proper flux used, and the *case is well heated*, there will be no annoyance from "roughening."—J. C. K. C.

Reply to "C. S."—To remove the black from Arkansas stone, use naphtha of kerosene oil.—J. C. K. C.

Reply to "S. H."—As the cause of all sickness at the stomach from hemorrhages is the want of a due supply of blood to the brain, the indications for giving relief are twofold. First, the sufferer requires the head to be placed as low as possible,—the recumbent posture upon a couch, *without pillows*, and with the *feet somewhat elevated*, answering every purpose; and second, stimulants should be freely administered to sustain and quicken the circulation. For this purpose, brandy-and-water can be given by the stomach, and morphine by enema or hypodermically.—J. C. K. C.

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The Celluloid Base.—I have had some experience with most of the dental bases for the last fourteen years, and I unreservedly pronounce in favor of celluloid. The only fault that I can imagine is *that dentists will not use the same artistic skill in its manipulation as with gold.* Rubber is worthless when compared with it. Use more skill with celluloid, and you will not want to use rubber. I have made failures with it. I have *boiled* some plates with the same result as Dr. Eames of St. Louis. Follow the instructions as they are now published, using care not to press it down until it is heated to 280° Fahr., and you will have good results. Celluloid is stronger, lighter, as easily worked, and not liable to affect the mouth with mercurial poisons, as rubber does.—E. A. Miller.

The Celluloid Base.—As there seems to be a disposition on the part of some to criticise the celluloid base pretty sharply, I will give you my experience in the use of it. There have been faults in it, and there is still a chance for improvement. I believe the capabilities of the celluloid are great; I also believe the love of money in the hearts of the manufacturing company is fully as great. In other words, the experiments with this, as a base for dental plates, have been conducted at the expense of dentists throughout the country, instead of at the expense of the manufacturers, as they should have been. The article was thrown into market, and kept there for some time, before it ever ought to have been, and this has thrown disfavor upon it. I have been using it altogether, since it was first offered to the public, and the *first* plate I ever made with it is still being worn comfortably in the mouth, though I know I could make a better one now. I have had some failures with it, and so I had when I used rubber; I have never had a patient complain of it. I have put it in for several who had been wearing rubber, and they invariably expressed themselves in favor of the celluloid, as being lighter, easier in the mouth, cooler, and more cleanly. I have never had such *perfect adaptation*, and, as a consequence, good fits, in the use of any base as with this.

Wherever it is possible, I always use plain teeth, as the liability of shrinkage is much less. I have never had *any shrinkage* where I used plain teeth, and in several cases only where I used gum teeth. It is necessary to use care and judgment in several things, as follows: in order to insure success, the right kind of flask must be used, and there is none so good as the one that comes with the apparatus. After the flask is taken apart, and the wax removed, be sure and see that the teeth are not loose in the plaster; also that there are no sharp overhanging edges of plaster; also cut deep channels for surplus. After this, give time to dry thoroughly. In selecting a plate, choose one that has a smooth surface; reject those that have a flaky appearance, and do not pick for the largest one you can find (for too much material sometimes causes failure), but select one that will as nearly fit the mould as possible,—it may be bent nearer the shape by dipping in hot water. If it is much too large, cut it down; place it in the flask; put the flask together; set it in the clamp without any pressure; put it in *cold* oil (never use water), and heat gradually till the thermometer indicates 310°; then screw down till the flask comes entirely together. (The last plates have been so much harder that I have let it run up to nearly 320° before screwing down.) Take it out of the oil, and let it remain in the clamp till cool, then take it from the flask by cutting away the plaster, not by *prying it open in the middle*, and finish the same as rubber. In polishing, be sure and keep both cork and brush constantly wet, else the heat produced by the friction may spring the plate. There is lack of uniformity in regard to compactness and color, which I should think should be overcome; but taken as a whole, I am well satisfied with it. I do not think it quite so hard as rubber, but equally as strong, and not as liable to breakage.—F. FRENCH, M.D.S.

A CASE IN PRACTICE.—A lady patient, age twenty-two years, who had never menstruated up to six months ago, called at different times and had fifteen (15) cavities filled in very sensitive teeth. After three (3) sittings, the menstrual flow was established, and she has had no difficulty by suppuration. As the teeth and uterus are sympathetically connected, might not the filling of these sensitive teeth have induced menstruation? The lady has been under medical care for years, up to about a year ago, to have this change brought about, but never received any benefit from the treatment of different physicians. For the last six months she has menstruated regularly.—H.

METAL PLATES WITH CELLULOID.—One of your contributors (Dr. A. C. Ford), at the close of an article on the celluloid base, in the April number of the DENTAL COSMOS, asks if teeth can be attached to metal plates by celluloid. As soon as I heard that some of the celluloid plates had changed in the mouth, I began to attach teeth to metal plates with this base, in the following manner: I cast a lot of plates of alloyed aluminium of different sizes, and about as thick as an ordinary gold plate. Then, having an extra model, which may be made of lead, I select a plate of the nearest size, and, with a wooden mallet and burnisher, fit it in a few minutes. I now drill a few holes through the plate at different angles. Having the teeth all ready in the flasks, as for a rubber set, I lay the metallic plate on the model in the flask, and on this a celluloid plate. When the flasks are brought together in oil at 310° or 320°, we have, I think, the best and stanchest kind of work that can be made; a metallic plate for the palatine surface, and celluloid for the lingual. These directions are for upper sets only. I have made all my lower sets for the last two years of alloyed aluminium, which stands the secretions of the mouth as well if not better than 18-carat gold, or rolled plates of aluminium.—M. L. COLE.

CAREER OF THE ELEMENTS OF TISSUES.—While reading an article on this subject, published in a recent number of the DENTAL COSMOS, I was forcibly reminded of an occurrence that happened at one of the *quizzes* of the venerable and quaint Dr. Bond, of the Baltimore College of Dental Surgery. He asked a student, "What is pus?" His answer was in substance, as taught by the professor of physiology (a follower of Lionel Beale), that it was an abortion of germinal matter in its developmental power,—"infant tissue strangled at birth." The old doctor waited patiently till he had gone through the chain of reasoning establishing this conclusion, hesitated a moment, and, looking at him, quietly asked, "Now, sir, can you tell me what pus is?" As I make no pretension to being one of "the learned few," I would respectfully ask the distinguished doctor to come down off of his stilts, and tell us what the "career of the elements of tissues" is.—J. H. SCALES, D.D.S., *Virginia.*

DRY CAVITIES —It frequently happens that it is quite inconvenient to apply the rubber dam, or the patient with sensitive gums objects to the pressure necessary to secure it in position around the necks of the teeth, below the margins of the cavities. In many cases, a much simpler plan can be pursued with successful results. Take, for instance, a lower molar in which the decay involves the grinding surface, together with the approximal to the margin of the gum. Separate to the required extent, and prepare the cavity. Fill the tooth with wax to the fullness intended with the permanent filling; then fill the space between the teeth with amalgam. The patient may then be dismissed till the amalgam hardens, after which the wax may be removed, exposing a cavity with water-proof walls, which may be filled with gold. As soon as the gold is consolidated, the amalgam may be cut away. An os-artificiel or Guillois's Cement filling may be inserted as soon as the amalgam is put in, leaving the latter as a protection to the filling for a day or two.—L. P. M.

NECROSIS, OR SOFTENING OF THE BONES OF THE ANTRUM AND MAXILLA.—Some two months since, Miss B., aged thirty, in poor health, scrofulous diathesis, applied to me for the treatment of a "swelling in the roof of the mouth." It was at this time about half the size of a hen's egg cut through the center lengthwise, the flat side turned up against the palate, filling the mouth so as to cause a very great impediment in articulation and trouble in mastication. She stated that the swelling had been increasing in size from eight to ten months; that before its appearance she had suffered with neuralgia; subsequently with a dull pain in one side of the face. I extracted several teeth which were carious, expecting an exit of pus through their sockets, in which I was disappointed. I then lanced the abscess, which discharged copiously a highly offensive pus. Upon examination, I found a perforation in the palatine bone, and the bones quite soft and porous. I treated with such injections as I thought best, but without much relief for several days, when I extracted the first molar and penetrated the antrum. A considerable quantity of very offensive pus was discharged.

The disease had proceeded so far, that in breathing the air would pass from the nose to the antrum, and to the sac in the palate, causing the soft parts to bag with each inhalation, as though filled with a liquid. To relieve this, I made a rubber plate to fit the palate, and press the soft parts back into position, which, on account of being so long loose, had necessarily to be irritated to insure adhesion. This done, I kept the orifice to the antrum open, and by daily attention, using principally injections of solution of carbolic acid, with constitutional remedies, and a proper regimen, I think I have cured a case, the chances of which, two months since, seemed very doubtful.—N. J. MAYES.

THE CELLULOID BASE.—The following preamble and resolution were unanimously adopted by the Trustees of the Albany Dental Plate Company, at their regular quarterly meeting, held at the office of the Company, April 9th, 1872:

*Whereas*, The practice enforced by the Dental Vulcanite Company, of exacting licenses from dentists for the use of dental vulcanite, has proved to be objectionable and odious to the profession;

*And whereas*, Committees of dentists representing the profession in New York, Brooklyn, Baltimore, and Washington, have asked of the Albany Dental Plate Company to guarantee that the profession shall not be subjected at any future time to the odious exaction above named for using the celluloid base: therefore,

*Resolved*, That the Albany Dental Plate Company, by its Board of Trustees, now in session assembled, hereby pledges to the dental profession that it will not now, nor hereafter, charge licenses for the use of the celluloid base; nor increase the present retail prices of plates or apparatus; nor otherwise change its plan of business now in operation and so generally approved by the profession and the public.

J. SMITH HYATT, *Sec. Albany Dental Plate Company.*

27 Mortimer St., Cavendish Square, LONDON, May 3d, 1872.

TO THE EDITOR OF THE DENTAL COSMOS.

DEAR SIR,—Will you be good enough to remove the *Sir* which has somehow been attached to my name after a short notice of Guillois's Cement, which has appeared in your advertisements the last month or two? I did not consider it worth while writing about at first, deeming it a printer's error, which would not be repeated; but as it *has* been repeated more than once, I must beg you to allow me to disclaim in your pages having any right to the title, and again beg you to remove it. As it is customary with many Americans to address all dentists as Doctor, it may possibly be a misprint for that; but as I only hold the English diplomas of M.R.C.S. and L.D.S., and not the American degree of D.D.S., I am not entitled even to the title of Doctor. I am, dear sir, yours faithfully,

CHARLES JAMES FOX.

# THE BENONI E. GARDNER APPEAL CASE

IN THE

## SUPREME COURT OF THE UNITED STATES.

This case was argued on Monday, March 18th.

John A. Foster and Samuel J. Glassey, of New York, counsel of the New York Committee, and B. F. Horwitz, of Baltimore, counsel of Baltimore and Washington Committee, all for appellant; Causten Brown and B. R. Curtis, for appellees.

### *Official Copy of the Supreme Court Mandate.*

No. 133.

Supreme Court of the United States.

December Term, 1871.

Benoni E. Gardner, appellant, *vs.* The Goodyear Dental Vulcanite Company and Josiah Bacon.

Appeal from the Circuit Court of the United States for the ——— District of Rhode Island.

This cause came on to be heard on the transcript of the record from the Circuit Court of the United States for the ——— District of Rhode Island, and was argued by counsel.

*On consideration whereof*, It is now here ordered, adjudged, and decreed by this Court, that the decree of the said Circuit Court in this cause be, and the same is hereby affirmed, with costs and interest until paid, at the same rate per annum that similar decrees bear in the Courts of the State of Rhode Island.

6th May, 1872.

The above is a transcript of the decree in this appeal case, as recorded.

The Court adjourned on the 6th day of May, 1872, until October 30th, 1872. On the day of adjournment the Chief Justice made the following announcement:

"In the appeal of Benoni E. Gardner, this Court affirms the decision of the Circuit Court."

The opinion, or decision, of the Supreme Court will not be read until next term. Before that reading its exact wording cannot be anticipated.

We have been informed that two of the judges dissent, but our information does not extend to whether they will so far differ from the others as to offer dissenting opinions.

Our readers will understand that until the opinion, or opinions, are delivered, an exact measure of the extent of this defeat cannot be made.

From the fact that there was a "divided court" upon a case where so many distinct points were litigated, it is not an evidence of insanity to hope that some of these points may have been decided against the Cummings patent.

The situation is a little ambiguous, yet with the decisions of the lower courts, and the testimony and arguments before us, we may venture to offer the following estimate of its scope and effect, for the information of those dentists who feel like resisting Mr. Bacon's agents and refusing to buy license under the Cummings patent.

We dismiss the subject of the judgment against Dr. Gardner with costs, etc., and the confirmation of perpetual injunction against him. As regards him personally, it is a contemptuous sham. Fourteen months before the date of the decree here affirmed, Dr. Gardner was made a free licensee for the whole term of the Cummings patent. And four days after the appeal bond was filed, Josiah Bacon, Treasurer, gave him a written pledge not to hold him for the costs and damages in this suit. This was in fulfillment of the bargain to do so if he would consent to make this appeal.

That which concerns us here is not the sham case between the plaintiff and defendants in error, but the momentous case of the Goodyear Dental Vulcanite Company, of Boston, and Josiah Bacon, Treasurer, against the Dentists of the United States.

The judgment decree, immediately affirmed by the Supreme Court, is that of Mr. Justice Clifford, made on final hearing of the case in Washington, May, 1870.

The argument for defendant was written by Mr. Foster and spoken by Mr. Glassey, junior member of the firm of Foster & Glassey.

Justice Clifford made his decision in November, 1870. This decision is not anywhere of record accessible to us. A decree is entered at Providence. It orders a master to assess the damages, etc., and a perpetual injunction to issue against Dr. Gardner.

Mr. John A. Foster is our informant that Judge Clifford refused to write out a new decision, but applied the decision which he had made in the Wetherbee case, and reaffirmed it against Gardner.

We accept the information as true, and conclude that the following points in the decision of the Wetherbee case have most likely been passed upon affirmatively in this denial of the Gardner appeal:

That the Goodyear Dental Vulcanite Company, of Boston, are the owners of John A. Cummings' patent, and the reissues of it.

That this Company, although incorporated as a manufacturing company, has a right to do the business of selling licenses under this patent, thereby manufacturing through their licensees.

That the Cummings patent is valid notwithstanding the lapses of the applicant, and the irregularities which occurred in its passage through the Patent Office.

That the reissues of the patent are valid, notwithstanding they describe processes which were not known at all when Cummings made his first application.

In brief, that John A. Cummings was the first inventor of the use of hard rubber for making dental plates, and to his assignees belongs the exclusive right to its use for seventeen years, from June 7th, 1864.

Consequently, if any person, who is sued for infringing this patent, shall hereafter attempt to defend on any of these points, the Court, upon the showing of this adjudication, will almost certainly refuse to hear such defense, and immediately grant an injunction, because upon such a showing, a plaintiff should not be put to the cost and delay of a trial.

*To the Dentists of the United States:*

> "The evidence in a suit, where only one party is heard, is straighter than a line."
>
> *Hindu Proverb.*

The announcement of this defeat will convey a sharp pang to very many friends, whose sentiments of justice and equity it will outrage.

There prevails among intelligent citizens in this country a certain common-sense notion that the condition on which an inventor can protect himself is, that he shall procure a patent within the time fixed by law, and thus fairly notify all persons of his claim; and that if he fails, for any reason whatever, to do this, and permits other persons to use and practice his invention or discovery without protest of dissent, he forfeits all right to a lawful patent therein,—in legal phrase, dedicates it to the public; and that if he does subsequently get a patent, and undertakes to enforce it, the proof that it was known and in common use publicly for more than two years before the patent was granted, will be a safe and perfect defense against him.

The process and product of the Cummings patent was in use for eight years before its issue in 1864, and for five or six years of this time it was in large, general, and common use in every State in the Union, more particularly in the State and city where Dr. J. A. Cummings resided and practiced dentistry, and used it himself as others did under a Goodyear license. During all these years he never asserted his right, never notified any person that he had any idea of reviving his claim; while all the time the fact of his having applied for a patent, and failed to obtain one, was also known to many.

Guided by this well-settled and well-grounded belief that such a claim could not be made valid,—knowing the law, and that Cummings' patent was granted in violation of it,—the dental profession rested safely in the assurance that when, by the expiration of the Goodyear patent, their course became clear to resist it, it would be broken.

The feasibility of this was maintained in the DENTAL COSMOS, by correspondents who had studied and examined Cummings' patent, and was also fully and explicitly enunciated by the able counsel of the Ohio Dental Association, Hon. S. S. Fisher, late Commissioner of Patents, in his written opinion, given in 1868.

In this belief of the profession, in the opinions of our correspondents, and in the correctness of the opinion of Mr. Fisher, we had full faith, and still hold that they were each and all sound and right.

We are therefore constrained to assert that this affirmation of the Cummings patent, and the evil effects thereof upon the whole profession of dentistry, through the Gardner appeal case, was positively unnecessary; is largely due to bad counsels and errors of judgment in its management; and is pretty surely the culmination of a deliberately planned and skillfully carried-out imposition.

When the individuals who subsequently organized the Goodyear Dental Vulcanite Company had obtained the Cummings patent, and attended to its reissues, they strengthened themselves, and greatly weakened the present ability of the dentists to resist them, by buying of the American Hard Rubber Company, of New York, so much of the Nelson Goodyear patent as applied vulcanite or hard rubber to use in dentistry. What Poppenhausen & Co. had found to be a profitless job, Bacon & Co. made congenial and profitable. As a consequence of this purchase, they were able to organize and carry out their system of agents, spies, and enforced licenses; it being conceded that, in the way presented, and for the time it had to run, no successful defense could be made against the Goodyear patent. Here and there resistance to it was attempted,—never with success, however; and wiser counsels more generally prevailed, and were submitted to.

Although pushing the collection of license money under the Goodyear patent, and perfecting their organization over the whole country, the Goodyear Dental Vulcanite Company were fully alive to the paramount importance of the Cummings patent. Upon it their hopes of fortune depended. They studied the case and prepared for it by two reissues, and then with consummate boldness commenced an action for infringement against Dr. Wetherbee, of Boston. This suit is commonly known as the Wetherbee case. In it the Bacon party showed great confidence in their own careful and thorough preliminary work. Their counsel carried the prosecution with vigor and ability. The courtesy shown in admitting testimony presented by the defense, in a shape which would have enabled them to exclude it, might be construed into contempt for those who offered it, or the consciousness of great strength,—but was in fact an exact appreciation of the legal worthlessness of the evidence on which the dentists relied for proof of priority against Cummings.

Boston was a favorable place for a trial on this patent for all parties. For the dentists it was favorable, because the greater portion of the testimony which was useful in resisting Cummings' claim was attainable there or in its vicinity,—for the Bacon party, because, as the centre of manufacturing interests in this country, the courts may be presumed to enter earnestly into the defense of inventors against infringers; because, the spirit of invention being active in that section, the tendency will ever be for one person to use some portion of the invention of another, and rival claims be frequently set up for the same invention. Jurists in these courts become skillful in the law of patents, and, whatever may be said or thought to the contrary, their decisions are not often overruled.

The Committee of the dentists associated for defense was capable, worked hard, was tolerably well sustained, had very able counsel, and made a defense which was nearly perfect. We think the Wetherbee case was in every respect honestly managed by the dentists and their counsel, and that, for a first trial, it was very complete. With it for a guide, a case might have been made up for appeal on which the Cummings patent would have been broken. We quote from the opinion of Mr. Fisher, before alluded to:

> "A final decree has not yet been entered in this case, and it may yet be removed, by appeal, to the Supreme Court at Washington.
>
> "If this should be done, it seems to me that the validity of this patent would not be sustained, notwithstanding the opinion of the learned judge. A case has never yet arisen where a patent has been held good which was granted under circumstances similar to those attending the issue of this one to Cummings."

The decision of Judge Clifford was a great surprise to many persons who had given serious attention to the trial. The extreme ground which his honor took in sustaining the issue of Cummings' patent has always been thought to indicate a bias in its favor. An idea was prevalent, which we think has always been maintained among dentists generally, and with many lawyers, that Mr. Justice Clifford's famous opinion in the Wetherbee case would not obtain the support or assent of the other judges.

The proposition to appeal it to the Supreme Court was very popular, and abundant means would have been supplied by those who urged and desired this action. Nevertheless it was wise to refrain until a case was made up, under the care of those who would carry it through, and free from the mistakes which were incidental to a first trial.

This forbearance was predicated on sound judgment, and implied no doubt of the result which might be gained whenever that decisive stroke should be made by a competent hand. There was then no suspicion that a treacherous or collusive case would be devised and carried through the Supreme Court of the United States; the Goodyear patent had several years to run; and meanwhile vigilance slept and the enemy wove the net.

The apathy of dentists and dental societies cannot be excused. The dates and interval in which they had time to prepare for an active campaign against the Cummings patent were again and again announced to them, yet they slumbered supinely throughout the whole period, and gave their enemies full play to concoct this swindle. We do not care to press this. "What is everybody's business is nobody's business,"—this proverb applies to us all, and also excuses all. However pitiful the result, and however needless it may have been, no one will say of himself, "I am to blame, that I did not work in time to prevent it." On the contrary, too many will be disposed to sling censure around loosely, if only to save themselves from censure.

The Bacon party prosecuted their work industriously during this interval of inactivity. Positive resistants of their claims were brought to Court in several districts, and, with one exception, every suit against individual dentists resulted in an injunction against the victim, and in favor of the Cummings patent.

Conspicuous among these now, although in its beginning or inception it was almost unnoticed, is the suit against Dr. Benoni E. Gardner, of Providence, R. I. Dr. Gardner was a licensee of John B. Newbrough, and this suit was instituted to make an issue between the Cummings patent and the patents of Fagan and Newbrough for iodized rubber. This issue affected only a small fraction of the dental profession, and the case owes all its notoriety to the fact that it afterward became the foundation of the collusive artifice practiced upon the United States Supreme Court, and the decree which has just been obtained sustaining the Cummings patent against the appeal which Dr. Gardner was induced to make.

Dr. J. B. Newbrough, in trying to get the profession to adopt iodized rubber, not only offered more favorable terms than the Goodyear Dental Vulcanite Company, but also pledged himself to defend his licensees; and, in fulfillment of that pledge, he did defend Benoni E. Gardner when a suit was instituted against him. Local counsel, resident in Providence, having been employed to enter an appearance, Dr. N. provided as his counsel Messrs. J. A. Foster and S. D. Law, to make the argument for defendant, on the application for preliminary injunction.

The summons to Gardner bears date Sept. 24th, 1868. A temporary injunction was granted against him Nov. 25th, 1868. Dr. Newbrough did not permit this to lie, but filed an answer Dec. 7th, 1868, and prepared for final hearing upon his main issue, viz., the exemption of iodized rubber from Cummings' claims. The defense, as honestly conducted for Dr. Newbrough, was in reality limited to this, viz., that whereas John A. Cummings had, in his claims and specifications, confined himself to hard rubber vulcanized with sulphur, and named the Goodyear rubber as that which filled the conditions of his specification, and with which only he had worked, the iodized rubber, which was a different compound, was free from the claim of his patent by reason of that difference. Briefly, that iodized rubber was clear of Cummings' claim, because it was a compound of different ingredients from that on which his claim was based.

They began taking testimony April 8th, 1869, and were engaged upon it about three months, when we are brought to a halt by finding that Dr. Newbrough compromised with the Goodyear Dental Vulcanite Company, and ceased to defend this suit. He found himself embarrassed in his efforts to sell and sustain the iodized rubber, and the suits pending against him were tending to adverse decisions. The profession held back from committing themselves to his rubber, and were chary of buying his licenses.

On the other hand, the Goodyear Dental Vulcanite Company had sustained very serious diminution of their income. This was due mainly to the discussion of their impositions by societies, conventions, and dental journals ; but they were persuaded to believe that a large portion of their loss was caused by iodized rubber and Dr. Newbrough's opposition.

Through the intervention of a person who had acted previously as an agent for Bacon, but who was then engaged by Dr. N. in exploiting iodized rubber, a compromise settlement was effected. This settlement bears date July 1st, 1869.

According to the terms of it, Dr. N. surrendered his patents, and became a licensee of the Goodyear Dental Vulcanite Company. Four licensees of Dr. N. were also protected. All these were to receive from the Goodyear Dental Vulcanite Company a free license under the Goodyear and Cummings patents. The suits against iodized rubber brought under the Goodyear patent, and against its use for dental plates brought under the Cummings patent, and also the suit to have the Haering patent declared void, were provided for; either by discontinuance or agreements covering their conclusion.

The suit against B. E. Gardner, the defense of which had heretofore been managed by Dr. Newbrough, and the expenses of which had been paid by him, is not named in the agreement; but that Dr. Gardner was thought of, and his safety and interest considered, is evidenced by the fact that it contracts for a license to be given to him continuously, without cost, on both the Goodyear and Cummings patents.

Dr. Gardner disclaims having been taken into the confidence of his friends or fully informed of his privileges and immunities under this contract. We have his detailed statement in writing, and from it we glean, that Dr. Newbrough came to Providence subsequently to the compromise, informed him that he was free to use vulcanite in his practice, and that the suit was to be continued merely to test priority between the Cummings and Haering patents; that he heard a settlement of accounts between the lawyer Hayes and Dr. Newbrough; that Mr. Hayes took occasion to say to him (Gardner) privately that up to that time he was safe and clear of all responsibility for costs and damages, and warned him to be careful about signing papers in future.

By the compromise Dr. N. became interested—as also did the friend who managed the settlement—in the increase of revenue of the Goodyear Dental Vulcanite Company, which they all anticipated.

John A. Foster showed us a copy of this agreement, and permitted us at that time to take the names of the signers and witnesses to it, and the date of its execution: the real significance of the document was learned subsequently. We owe our thanks to Mr. Foster for thus starting us on a trail which led to all the documentary proofs of the collusiveness of this case.

Dr. Newbrough asserts, that besides paying Mr. Foster in full for legal services up to the time of this settlement, he recommended him to the Goodyear Dental Vulcanite Company, and understood that they employed him to carry on one of the suits.

Dr. Gardner says he was informed of the transfer of the management of the suit to Mr. Foster, but had no knowledge that Dr. Newbrough's interest therein was wholly extinguished, nor any suspicion of Mr. Foster having been employed or paid by Bacon. He asserts that, while he knew there had been a general settlement, he supposed that this remained a live issue.

Our readers, by comparing this statement of Dr. Gardner, with what we have shown the contract really was, will discern the intention, which becomes more apparent as we proceed, to delude Dr. Gardner as to the use they were making of him.

Shortly after the settlement, Mr. Foster came to Dr. Newbrough and said that the Goodyear Dental Vulcanite Company wished to continue him (Foster) as counsel for defendant in the Gardner suit, and desired Dr. N. to pay him, and otherwise carry the case along, just as if he was still defending it, and that they (the Goodyear Dental Vulcanite Company) would reimburse and pay back the whole of the cost of such (bogus) defense.

We make this statement wholly on the word and authority of Dr. N., and add, that he claims to have refused, indignantly, to carry out or be a party to any such deception; he also says, that he sold all his interest in the profits of the Goodyear Dental Vulcanite Company, for a small sum, to the friend who negotiated the settlement.

Benoni E. Gardner, being a licensee of J. B. Newbrough, who paid for and carried on his defense when application for a preliminary injunction against him was made by the Goodyear Dental Vulcanite Company, and having been protected by Newbrough in the settlement with a free license,—under both the Goodyear and Cummings patents,—ceased then any longer to be a veritable defendant, although his name was retained in the case; John B. Newbrough, being also a licensee of the Goodyear Dental Vulcanite Company, and having disposed of his iodized rubber, had no interest in the defense of this case after July 1st, 1869, although, before that date, he was the defendant in fact.

After the settlement with Dr. Newbrough, somebody went to Providence and obtained from the local counsel there, who had entered appearance for Dr. Gardner, an assignment of the case to J. A. Foster, giving him control thereof as leading counsel of record, subsequently to which the strategic game of making up a case for appeal to the United States Supreme Court went on, beginning in August, 1869, and ending with decree and appeal in November, 1870.

A careful examination of the record begets in our mind the conclusion that there never was a sincere intention to make a good or perfect defense. Stipulation after stipulation was made—in each instance to favor and cheapen the process of prosecution to the Bacon party.

The testimony being all in Sept. 13th, 1869, there ensued, Nov. 20th, 1869, the stipulation No. 2 of Record: "It is hereby stipulated and agreed that this cause may be heard on pleadings and proofs by Mr. Justice Clifford, sitting at Chambers at Washington City, and that a decree may be made by him thereon at said city as if made in Rhode Island."

What attorney, conducting a true defense for a genuine defendant, would have consented to such a stipulation as that?

Can a dentist be found who believes that consent to go out of the bounds of the circuit to plead before the judge who had decided the Wetherbee case so pronouncedly in favor of the patent, was ever given by a counsel who sought to win the case?—or that Mr. Foster did not know that he thereby bargained away all chance of success?

For the work done upon this case after July, 1869, viz., taking testimony before Commissioners during thirteen months, and making up the case for appeal, we have been told that Mr. Foster was paid by the Goodyear Dental Vulcanite Company, and that for a "spread-eagle" speech before Judge Clifford, and other services, Mr. Glassey was also paid by the Company. We ourselves believe the information, but the difficulty of making proof where the witnesses are nearly all implicated is such that we ask our readers to class it as a rumor.

The examination of witnesses, conducted wholly in New York, before a United States Commissioner, was concluded in September, 1869. The case, on final hearing, was argued before Judge Clifford, at Washington, in May, 1870. His decision was probably oral. The Record exhibits only a Decree, September 8th, 1870, referring cause to a master. Master to take and state to the Court an account of gains and profits, etc. Injunction to be issued against the defendant.

The date, September 8th, 1870, is an eventful one. The Goodyear Dental Vulcanite Company had several things to get done, and decided to put them all through in one day.

See the Record:

September 8th, 1870. Decree, referring cause to master, etc.

September 8th, 1870. Parties appeared with their counsel, and agreed that the master should report the sum of seventy-five dollars as the gain and profit.

September 8th, 1870. Final decree. Upon the coming in of the report, Benoni E. Gardner was *perpetually enjoined* from making, etc.

September 8th, 1870. Benoni E. Gardner appealed the case to the United States Supreme Court. Appeal allowed in open court, bond to be filed within ten days.

Of these four items, the first is probably a genuine result and date. *The parties*, being Josiah Bacon & Co., were fully informed of the day when that decree would be entered, and entirely unanimous about what else was to be done.

The written statement, and conversation, of Dr. Gardner, serve us admirably at this stage of our history. Dr. G. says of the second item, that the only counsel whom he saw was Mr. Jabez Holmes, attorney for Josiah Bacon, who appeared to him on that day, and told him that he represented *the parties*. Some account was to be made out. He went with Mr. Holmes to some office. In reply to questions, he told them that he had no accounts by which to make up a statement of his profit on rubber-work. Had been told that the use of it was free to him, and therefore exercised no care about it. Finally, they computed from the number of cases he remembered making, and agreed to call it seventy-five dollars.

Then Mr. Jabez Holmes told him that *the parties* had agreed to appeal the case. He avers that this was the first and only intimation of an appeal which he had ever heard, and that the absurdity of the thing was so apparent as to cause him to remind Mr. Holmes that he (Mr. H.) was attorney for the plaintiff who had just gained the case, and, therefore, could not quite understand how the party winning could reconcile themselves to solicit the defendant to appeal.

Mr. Holmes replied that it was all agreed upon between *the parties*, and a Supreme Court decision was required to settle whether Cummings or Haering was ahead in making this invention.

Dr. Gardner is quite certain he was told this for a reason to quiet his surprise,—and he believed it. He never had any other idea of the appeal, and was satisfied with that part of the story. If his friend, Dr. Newbrough, had come thus to him, he would have consented without any condition; but as he was then dealing with strangers, he recalled the warning of Mr. Hayes, and demanded some guarantee that he should be kept safe from the present judgment and future costs. Mr. Holmes offered, as attorney for the Goodyear Dental Vulcanite Company, to give him such a guarantee. But Dr. Gardner refused to accept that, and required to have it in "Bacon's own handwriting." Upon receiving Mr. Holmes' promise that such a safeguard should be forthcoming, he executed the papers which were prepared, but explicitly denies having furnished any security on the bond: this bond is signed

"BENONI E. GARDNER."
"HENRY W. GARDNER."

The bond was filed Sept. 17th, 1870. The doctor denies having any knowledge of Gardner No. 2.

A different witness attests the signature of Henry W. Gardner. As our Dr. B. E. Gardner does not mention a second interview with Mr. Holmes, it is probable that the security Gardner was hunted up during the interval of nine days which elapsed before the filing. This is not worth mentioning, except to show that every detail of this appeal was managed and provided by the Goodyear Dental Vulcanite Company without any care to conceal their complicity.

Dr. Gardner subsequently received a letter from Josiah Bacon, Treasurer, written wholly in the hand of that gentleman, which confirmed the guarantee of Mr. Holmes.

This document, published in Appendix, sets at rest every doubt about the collusive character of the appeal. Taken in connection with the contract of Dr. Newbrough, the proof is complete. In this letter the unblushing Josiah stands forth as both plaintiff and defendant in his own person; for the interest which he saddles upon Dr. Newbrough had been assigned by Newbrough to him fourteen months before!

Why did they intrust this business solely to their own attorney? Was Dr. Newbrough no longer available when dirty work was to be done? Could they not trust Mr. Foster to act a part, as counsel for the defense, in so important a scene as this of the appeal? Was it merely a fit of economy? or had they grown reckless and careless of all decency or propriety, that they should rush four important entries upon the record in one day, with only their own attorney present?

We suspect—but it is only a suspicion—that Mr. Foster was out of favor at that time in the Bacon councils. Certain it is, that, a short time after this appeal was made, he was either indiscreet or revengeful; for in December, 1870, he came to Philadelphia as counsel and advocate of the Ready Rubber humbug, trying to get us to aid in inducing dentists to take licenses, or rights to use Ready Rubber, and stated in the presence of this writer—and two other reliable witnesses—plainly, that of his own certain knowledge the B. E. Gardner appeal case was a collusive one, made up to gain a decision in favor of the Cummings patent in the United States Supreme Court. His exact words were: "Both sides made up by Causten Brown and the best points against the Cummings patent left out." (Causten Brown, Esq., is the working counsel of the Goodyear Dental Vulcanite Company.)

Will our readers accept John A. Foster, Esq., this eminent champion of dentists' rights (whom they have seen lauded and indorsed by committees and societies, with requests for dental journals to publish their praises of him), as a competent witness to the character and intention of this celebrated B. E. Gardner appeal case? Does he, who carried it through all its stages up to final hearing and decree, know for whom it was got up—and why?

In December, 1870, he uttered this opinion and denunciation of it. He repeated it more than once—on more than one day—to and before several persons; not casually, but circumstantially, with statements of detail, and arguments, and assertions to show that the Cummings patent was sure to be sustained—on a case thus prepared—in the court of last resort, and that the only way open for escape was the plastic Ready Rubber way, of which he was the able advocate. In order to put this "Ready Rubber" humbug on the dentists, he thought it was necessary to exhibit it as a refuge from the Cummings patent,—hence this revelation, which we have since confirmed by irrefutable proofs.

The next phase in this suit which claims attention is when this versatile genius, having made a case for a defendant who must have been the plaintiff,—for whether we consider him as working for and paid by Dr. Gardner, Dr. Newbrough, or the Goodyear Dental Vulcanite Company, is no difference (after July 1st, 1869, all these parties, as indicated by facts stated, were in the same interest); having made this case in the way we have shown; having been managed and paid by somebody interested in losing it (the proof of which, contained in Dr. Newbrough's contract of settlement, he held a copy of in his own desk); having denounced it as a collusive fraud, when trying to stick Ready Rubber on the dentists;—Mr. Foster now conceived the brilliant idea of enhancing his gains by dealing with parties who had a real interest in the defense, and getting more pay from them.

The dentists as a body knew nothing at all of this case. As the time for its hearing approached, it has been stated that a person in authority in the Goodyear Dental Vulcanite Company came from Boston to New York, and said,—we quote verbatim as related,—"It is going on too flat; it looks too thin; we must have the appearance of resistance against us. Stir up the dentists; get them to give their notes; we must have a show of genuine defense." Whether carrying out the orders thus indicated, or working for his personal profit, the coveted appearance of resistance was created, and from this time forth Mr. F. has apparently worked as though he was the sincere advocate of a genuine defense.

At a meeting of dentists held in New York, December 23d, 1871, we had the pleasure to hear Mr. Foster, in a very long and artful speech, set forth that this appeal case was genuine; that B. E. Gardner was too poor to carry it through; that his defense had in it the certain elements of destruction to the Cummings patent; that he had worked hard and long on it, from pure love of the task of defeating a gigantic fraud.

He so far impressed this audience that a committee was appointed. Contributions in money and notes were solicited. The cash first asked for, five hundred dollars, was paid; then five hundred dollars more was demanded, and that also was paid.

As Mr. Foster was about to retire from this meeting, he stopped to remark that it might be deemed desirable, by organizations of dentists in other cities, to associate their own counsel with him. He said that he had met the counsel of S. S. White in Philadelphia, and found him well informed on the points which were involved in the contest with the Cummings patent, and that if the dentists of Philadelphia should decide to employ associate counsel, he would be glad to have him on the case.

If the question, why we did not denounce him then and there, arises in the mind of any reader, it is answered by the explanation that we attended the meeting only to listen and learn. We had not joined in the call, nor participated in the movement. Being, however, requested, toward the close of the meeting, to speak, we did feel compelled to express disapproval of the speculation proposed, viz., that for a service which a business man would procure first-class counsel to do, and get well done, for the ordinary fees (five thousand dollars would be a liberal sum to appropriate), dentists were here asked and expected to give, in ready cash, a respectable fee and provision for expenses, and in addition thereto a contingent note of fifty dollars. These notes, if given by one-half the dentists, would amount to three hundred and twenty-five thousand dollars.

This was not the sort of action which we felt like recommending. If dentists had need of lawyers, they were able and forehanded enough to employ them as liberal business men would, and not be thus drawn into a speculation which subjected them to a prospective payment amounting to fifty times the value of the services to be rendered.

It is asserted that there were at that meeting three or more dentists furnished with a letter from one who knew and could prove what he wrote, charging that the case was collusive, and that J. A. Foster knew it to be so. That letter was returned to the writer of it, with the statement that the meeting was too enthusiastic for going on with the appeal,—too full of friends to Foster for them to venture to check it.

This is cited to evidence how futile any attempt of an outsider would have been to divert the course of this meeting from the original intention of those who controlled it.

One gentleman, however, had the courage to say to Mr. Foster that it had been reported that he (Foster) had recently received money from the Goodyear Dental Vulcanite Company, and that he would like to be informed about it.

"With a smile that was bland," Mr. Foster replied, "If I have received any money from them, I would like to know where it is." Mr. Glassey, his junior partner, undertook to explain to the meeting that two thousand eight hundred dollars had been paid to them by the Company, for services rendered to Dr. Newbrough, which the Company had agreed to pay when they made their settlement.

This explanation of Mr. Glassey is not sustained by our examination of the agreement. It does not contain any stipulation that the Company should pay these expenses. Dr. John B. Newbrough asserts that each party was to pay their own costs and expenses; and he offers to prove that he did pay Mr. Foster in full, for all his services in the defense of Dr. Gardner. Mr. Glassey's admission of the receipt of money from the Company, by both Mr. Foster and himself, is, therefore, left standing,—by reason of his explanation being severed from it,—as a simple confession of the charge.

Having returned to Philadelphia, an early opportunity was made to reconsider Mr. Foster's statements of December, 1870, and compare them with those now made in December, 1871. The speech and points of 1871 were repeated to one, and then to the other, of those who had heard his conversation in 1870. The first exclaimed, "He is a scoundrel: he told us that it was a collusive case, both sides of which belonged to Bacon, and sure to be affirmed by the Supreme Court." The other said, "He is a shyster: did he not tell us, a year ago, that this was a collusive case, both sides made up by Causten Brown, with the best points against the Cummings patent left out, and sure to be affirmed by the Supreme Court?"

To the counsel, referred to by Mr. Foster as being well informed upon the subject, we expressed unwillingness that so important a case, involving such serious results, should be presented to the Supreme Court by the person who had made these irreconcilable statements in regard to it. If the assertion, that the case had been made up in the interest of the Goodyear Dental Vulcanite Company, had in it a possibility of being true, it was rash and unsafe to intrust it to one who had aided, even unwittingly, in that deceit.

Yielding to our urgency, this gentleman consented to act as associate counsel, upon the conditions that he should be furnished with the Supreme Court record of the case, and the brief and points of the counsel for defense, giving Mr. Foster his choice to open or close the argument.

While these inquiries and arrangements were being made, a desultory correspondence was going on with some members of the New York Executive Committee. "Out of the abundance of the heart the mouth speaketh,"—so a hint of doubt in the integrity of the appeal, and also in Mr. Foster, escaped us in one of the notes. This elicited an earnest request for further information from the person to whom it was written.

Fortified, as we now were, by the certainty that two friends could testify to Mr. Foster's statements of 1870, and also by being able to offer an associate counsel of integrity and recognized ability, there was no hesitation on our part, and an arrangement was made to meet and talk it over in New York. At this meeting it was immediately discovered that, to the employment of Col. Foster and the maintenance of the appeal, the Committee had positively pledged themselves.

They nevertheless listened to a full account of the contradictory nature of Mr. Foster's statements in 1870, at Philadelphia, as compared with the opinions he now held and uttered. We were not at that time in possession of the proofs, which have since been so kindly and liberally supplied by Dr. Newbrough, Dr. Gardner, and several other persons, but enough was known to make us anxious to guard against treachery and the faulty preparation of the case. A letter, addressed to Dr. Dwinelle, was read. This letter related a conversation with Mr. Josiah Bacon, and told how he had boasted that the Gardner appeal was fixed so that they could not fail to win it, because there was to be no real defense. It was conceded that the one sure way to act was, by adding to the defense counsel of unimpeachable character. Our proposal to furnish such an associate was accepted. The hopes and fears which governed us are told in the following extract from the statement of the Committee, officially communicated and published in the Dental Cosmos, February number, p. 113:

> "The Committee desire, on behalf of the dentists, to acknowledge the liberality and the fraternal spirit with which Dr. S. S. White is aiding in the present exigency. While he carefully *disclaims any indorsement* of the *Dr. B. E. Gardner appeal*, he has contributed generously to the first amount, which it was necessary to raise immediately,

because he wishes to aid us in doing all that it is possible for us to do under the circumstances.

"The brief period between the appointment of the Committee and the calling of the case for trial (which is likely to be reached by February 15th), made it impossible for societies at a distance to so mature their plans that they could employ additional counsel in time to permit them to study the case.

"In this emergency Dr. S. S. White, having been informed that Hon. S. S. Fisher, who had studied the case thoroughly while working as chief counsel for the dentists of the West, has taken a retainer from Bacon to go on the shelf, and fearing that the case might be lost for want of proper watchfulness, and *hoping to avoid the hearing if it should be found that it could not be properly presented*, while utterly declining to influence any other person to aid or subscribe to the maintenance of this defense, proposed to the Committee to employ, at his own personal cost, counsel of eminent ability, to be associated with Col. Foster.

"This offer the Committee thankfully accepted. Calling upon Col. Foster with Dr. W., he offered an eminent practitioner of Philadelphia as associate counsel, who was promptly and fully accepted as such by him.

"W. A. Bronson, *Sec. of Committee.*"

This prompt acceptance of an associate by Mr. Foster was very grateful to some members of the Committee, who had anticipated reluctance or refusal from him. Their confidence in the sincerity of his acceptance is abundantly indicated by the fact that they published it. We had then no idea that he could venture to evade and repudiate such an agreement.

The understanding with the Committee was, that joining thus in their action was not to be construed into any relinquishment of our suspicions.

Shortly after this, we recited these facts, fully and unreservedly, to Dr. Hunt, of the Washington and Baltimore Committee; Prof. J. Taft, of Cincinnati; Dr. John McCalla, President of the Pennsylvania State Convention; Dr. W. N. Morrison, of St. Louis, and several others; never hesitating to speak plainly to all who represented committees or societies, although it was utterly impossible to make circumstantial replies to the many friends who wrote to us during these weeks for information on the "appeal case."

Cotemporaneously with the official statement quoted above, the New York Committee offered for publication in the Dental Cosmos a "communication" written by Mr. Foster. The article, besides other vicious misstatements, had this sentence in it: "The case of the Goodyear Dental Vulcanite Company *vs.* Benoni E. Gardner *has been selected by the dental profession as a test case.*"

We refused to print this as an anonymous article, and only permitted it to appear when they indorsed it and requested its publication.

We knew that the statement above italicized was untrue, and we believed that it was designed to close the mouths of dentists when the case should be lost.

We reprint this unqualified approval of Mr. Foster's article by the Committee:

> "The Committee of the Dentists of New York and Brooklyn take pleasure in acknowledging the receipt of the following communication for publication in the Dental Cosmos, and which is, for the most part, made up from the records of the cases now before the United States Supreme Court.
>
> "It is very timely and straightforward in its statements, and is laid before the profession in the hope that it may, if possible, increase the energy and strengthen the hope,—we trust well founded,—in the efforts now being so widely made, to free ourselves from an unjust and onerous tax.

That, after our refusal, the Committee were willing to allow Mr. Foster to write in their names, could not justify us in giving such falsities even a constructive indorsement. We therefore published in the same number (page 116, February Dental Cosmos) a general disclaimer of personal responsibility for any statements contained in our printed correspondence or communications.

We did this to avoid adding to the number of those who, confiding in false statements that the Cummings patent was about to sustain a real attack likely to break it, would, because of that belief, resume the use of rubber; Bacon meanwhile lying mute, with claws drawn in, but watchful and eager to pounce upon them the moment the validity of the patent should be affirmed.

How many dentists are this day willing to say they ever had a thought of "selecting" the Gardner case? By just that number our disclaimer will be censured, and all the rest must sanction or justify it.

Asking the reader to remember the conditions on which our counsel had consented to act, we resume the narrative:—

The record was not sent by Mr. Foster as promised; after days of unnecessary delay, an imperfect copy (lacking sixteen pages) was received. A request was made for the missing pages, to which no attention was paid. Two weeks later, the request was repeated; in reply to this Mr. Foster wrote, March 2d, refusing to supply the record until "*after the argument*," and stating,—

"At the request of the New York Committee, and on the suggestion of the profession in Baltimore and Washington, I have associated Mr. Orville Horwitz with me, who, with Mr. Glassey, will assist me in the argument." Thus refusing, March 2d, the assistance of the counsel which he had accepted January 31st.

The relief experienced at this severance of all connection with, or responsibility for, this most impudent fraud upon our friends,—many of them life-long associates and co-workers,—served greatly to tone the indignation which Mr. Foster's rudeness and evasion of his agreement naturally awakened.

We must here set out the conditions which made this action of Mr. Foster exceedingly prejudicial to the success of the appeal.

The case, as made up, was cunningly devised to touch upon nearly every point which it was desirable to clinch by the decision.

On prior invention in this and foreign countries, the answer was rich in promise, but the proof was utterly inadequate to sustain it.

Haering's testimony seems to have been put in wantonly to condemn him as a witness forever; for, by the contract with Newbrough, the Haering patent was to be assigned to them, in the event of its validity being sustained.

On cheoplasty the testimony was considerable, and well calculated to undermine a great portion of Cummings' claim to have invented any of the process of making a rubber case; the ANSWER, however, does not fully set it out. It was, therefore, very doubtful if the weight of this testimony could be availed of in the argument.

The answer denies broadly that the issue of the patent in 1864 was legal. It is also explicit on irregularities of the Commissioner, who had presumed to override the decisions of his predecessor, and condoned the failure of Cummings to complete his application within the legal limit, whereby it was outlawed or dead.

The testimony included a copy of the file wrapper and contents of the case, as found in the Patent Office. On this there was a chance that a good patent lawyer might base a fatal attack upon the title at some point, because it is so flimsy and rotten. Permit a brief statement of it. In 1853 J. A. Cummings filed a caveat. In 1855 he applied for a patent.

So ignorant were both Mr. Cummings and his patent solicitor of the general subject on which he professed to be an inventor, that in his first application he included gutta-percha and claimed it as broadly as vulcanite, not knowing that it had been used long before. After several amendments of it, his application, and all the appeals which he made, were finally rejected in 1857. Two years afterward, having submitted to the rejection without trying the further appeals which by law he might still have claimed, he asked permission to withdraw his application and drawings from the Patent Office. This was refused, because it was a REJECTED application, and, as such, the papers were by law or rule required to be kept in the archives of the Patent Office.

The law of 1861, which changed the patent term from fourteen to seventeen years, and abolished the system of seven-years extensions, contained the following clause:

"All applications for patents shall be completed and prepared for examination within two years after the filing of the petition, and in default thereof they shall be *regarded* as *abandoned* by the *parties thereto*, unless it be shown, to the satisfaction of the Commissioner of Patents, that such delay was unavoidable; *and all applications now pending shall be treated as if filed after the passage of this Act.*"

2d March, 1861.
12 *Stat.*, 247.

It was three years after the passage of this act—viz., in 1864—when Cummings' application for a patent was renewed. Upon his consideration of the application, the Commissioner not only condoned, without notice or petition, this lapse of one year, by which, even under this act, it was outlawed, but entertained and passed upon as *pending* a case which his predecessor, in 1859, had classed as *rejected.* It surely could not be both REJECTED and PENDING. If it really was "PENDING," Cummings would have been permitted to kill it in 1859 by withdrawal of the papers. If "*rejected*" was true, then it remained true always, and either way it was wrong to entertain it as a pending application under the law of 1861, as by the words of that act it should have been "regarded as abandoned." (See quotation above.)

On such a flimsy, galvanized fraud of an application the Cummings patent was granted, and this defective title is the sole claim on which the Goodyear Dental Vulcanite Company can raid and harry the dentists from May 6th, 1872, until June 7th, 1881.

Were we not justified in hoping that a good, sound, patent lawyer, of great practice and in good standing with the Supreme Court, might, if working earnestly, do something toward breaking such a patent title as that? We believe there were just grounds for such a hope. We believe now (and so do many others) that it was because the real owners of this appeal feared this counsel of ours,—feared to risk the danger of having him let in even on so wretchedly prepared a defense,—that he was denied.

Yet we were silent, except to the Executive Committee of New York. From them, as the responsible employers of Mr. Foster, we obtained their written certification that his action in dropping our counsel was done without their knowledge or consent. We claim that our silence was discreet. This denial came too late for us to take any other action. It was coupled also with the acceptance of Mr. Horwitz. He was certainly honest, having been selected by dentists. He might be capable, too, although he had no public reputation or notoriety as a patent lawyer by which to judge of him. We dared not raise a finger or say a word to warn or notify the large body of our friends, over whom we saw this danger and treachery impending.

And so this case, concocted purposely, as we firmly believe, to procure a decision from the Supreme Court of the United States in favor of the Cummings patent, had to go on, trusted to a leading counsel who, it was feared by many, was neither safe nor sincere, assisted by his partner, who was admitted to practice in that court on the morning of the hearing, on the motion of Causten Brown (they had no fear of Mr. Glassey), and one true man, brought in with so short a time for preparation that in his argument he felt bound to say to the judges, "I am not as familiar with the record as I ought to be, I admit." Not one of the three, it is believed, had ever before appeared in any patent case before the United States Supreme Court.

Gentlemen of the dental profession, have we shown that we had no part in bringing on this defeat? that we did all we knew to save it from being a disaster and to convert it into a triumph? Have we, at any time, by any utterance either spoken or printed in the DENTAL COSMOS, disheartened those who thought it their duty to work in this case? Have we induced any one to give any money toward it, or in any way aided to increase the number of dupes to it, or spread the delusion that it was ever meant by its managers to hurt the Cummings patent?

Some of those who were controlling and guiding the case to the hearing, were as cognizant of the true character of it as we could make them. Their mental vision was warped. They were intoxicated with the prospect and hope of success, and nothing but the bitter conclusion would sober them wisely. Others who were working in it were true and earnest men, giving much time to the collection of money and notes, though but little, if any, to the study of the case. We refrained from publicly exposing its character, because we had no right to stop their work; for with the day of the hearing so near, it would be folly to impair their force or weaken their standing. We gave money as liberally as any one did. We printed their notices, appeals, and statements, with one simple disclaimer; and when the crisis approached, having personal knowledge that over fifteen thousand dollars were pledged if the patent should be broken, hoping that the abundant reward which he was sure to reap might stimulate him to work sincerely for these his last clients in it, S. S. White, in a note addressed to Mr. Foster and delivered to him on the morning of the hearing, offered to give him five hundred dollars in addition if he won the case.

The wide-spread concern which is felt in it by a large portion of the profession, moves us to make so long and detailed a statement of this case.

Having carefully gathered the proofs which sustain all we say, our aim in this article is not only to vindicate ourselves, but also to set up the workers in this case in such clear light that their real relations thereto shall be incontestably manifest.

To know correctly and truthfully the procession of persons and events which have moved to this result, will enable our readers to judge of it soundly, and to discriminate between real enemies, rash or imprudent friends, and those sincere workers who chose to risk temporary censure and obloquy, rather than to aid in precipitating others into disaster.

Besides many things of interest omitted in order to relieve our readers from too lengthy a recital, we have refrained from every kind of personal censure upon those well-meaning dentists who thought they saw in this case an opportunity to redeem themselves and the profession from a galling imposition; and who, thinking so, blamed as lukewarm or traitorous, those who, because they knew more and saw more, could not share their faith or enthusiasm. Failing to comprehend all that passed before them, and blinded by Mr. Foster's statements, some of these persons have not hesitated to represent us as being antagonistic both to them and the case itself. Candid and just men will accept this veracious narrative as correcting all misrepresentations, and the calumny will be short-lived. For these censorious friends, who were yet true haters of the injustice of the Cummings patent, this defeat is punishment only too severe. They feel personally worsted.

What all this brings us to is the present relation of dentists to vulcanite work and the patent which controls it. The Goodyear patent expired May 6th, 1872. On that day this decision was announced, which gives to the Cummings patent a standing in court which deprives individual dentists of any hopeful chance of resisting it.

There is naturally due to a decision of the Supreme Court of the United States a certain weight and effect which this one will fail to secure permanently. We charge that the parties by whom this case has been made up have committed a deliberate contempt upon this highest tribunal of our country; that they purchased this case, so as to control it; that since its purchase, they have directed both sides of it, for the express purpose of gaining a decision rapidly and safely. Reckless of the dignity of the courts through which they have worked; reckless of the interests of thousands of dentists whom they plotted to entrap in meshes from which they now represent that there can be no escape; reckless of the professional honor of their own ablest advocate; reckless of everything but the success of their plans, and their selfish greed for a harvest of plunder.

We charge that in this case, since the settlement of the Goodyear Dental Vulcanite Company with John B. Newbrough, July, 1869, there has been no veritable *plaintiff*, because they were bound by that settlement to *give* a full license to the man whom they are, in this suit, pretending to sue for infringement. There has been no veritable *defendant*, because B. E. Gardner was licensed, and protection for him secured in Newbrough's contract.

We charge that this case has, ever since July, 1869, been collusive, and that it is a fraud upon the courts, and upon those against whom this decision is now sought to be enforced, and has never had any color of verity, except that which it obtained through the misguided efforts of those dentists who aided in giving it that semblance by their action just previous to and at the hearing.

Such a decision—a decision so obtained—is not entitled to, and will never receive, the deference and respect of intelligent, law-abiding, and equity-loving citizens.

The proofs of collusion and fraud, which we have gathered and hold, are safe beyond the possibility of concealment or purchase. They are ready to aid whatever resistant action the dentists of the United States may decide upon or be advised to take; whether that shall be to seek a rehearing of this badly-prepared case, or to claim a fair hearing on a new one.

Be sure, that when presented, the court will listen to them, and that this decree of May 6th, 1872, will NOT be FINAL. We advise our friends not to believe it, not to submit to it, nor to think of it as FINAL. Dentists should cease the use of rubber, and refuse to take or pay for licenses. Half-way measures will not do now. The refusal must be absolute, and it must be general. In the present crisis the Russian policy, strictly carried out, is the only one which will defeat the enemy and secure our own future self-respect. *Devastate the country through which they must march, and burn Moscow.* Let us test the question whether there is in this great body of educated men enough self-denial to make this course a success.

If this feeling and determination is established in the minds of individuals, it will be communicated from one to the other, extend to local meetings and conventions, and become accepted and recorded as the decision of these primaries.

Out of these a league may be formed, and a national organization set up, which will exert an influence strong enough to draw in the wavering, and those who have calculated upon making profit out of the abnegation of their brethren.

Ultimately, with a careful selection of leaders, wise forethought, the best and ablest counsel in all the land, and the abundant means which a very small contribution of a host of members will aggregate, this Goodyear Dental Vulcanite Company shall suffer first the extinction of their revenue, and then a trial, which will extinguish the title of their Cummings patent.

SAMUEL S. WHITE.

# APPENDIX.

## EXTRACTS FROM THE CONTRACT OR AGREEMENT OF JOHN B. NEWBROUGH. ORIGINAL IN THE POSSESSION OF S. S. WHITE.

*This Agreement*, made and entered into this first day of July, A.D. 1869, by and between John B. Newbrough and Henry E. Fickett, of the city, and county, and State of New York, of the one part, and the Goodyear Dental Vulcanite Company, a corporation created under the laws of said State, of the other part, *Witnesseth:*

* * * * * * * * * * * *

*Whereas*, Letters Patent of the United States have heretofore been issued to the said John B. Newbrough, and to one E. Fagan, as follows: No. 70,250, issued October 29, 1867; No. 73,545, issued January 21, 1868; No. 73,916, issued January 28, 1868; No. 73,917, issued January 28, 1868; all being for improvements in treating caoutchouc, gutta-percha, and similar gums, and in the manufacture of articles therefrom; and

*Whereas*, By assignment duly made and executed, the said Fagan has sold, assigned, and transferred all his right, title, and interest in and to said several Letters Patent, and the inventions described in and secured by such patents, to the said John B. Newbrough, of New York; and

*Whereas*, The said Goodyear Dental Vulcanite Company is desirous of terminating the litigation upon the question whether the compositions in said Letters Patent described, and the material hereinafter mentioned called Oilite, are infringements upon the patents of Nelson Goodyear, owned by said company; and

*Whereas*, Said company, without in any way admitting the validity of said Newbrough and Fagan Letters Patent, or that the compositions therein described are not infringements as aforesaid, or that the material called Oilite is not an infringement as aforesaid, have requested the said Newbrough to assign the said Newbrough and Fagan patents above mentioned, so far as they relate to, or are applicable for, use in the manufacture of artificial plates for dental purposes, unto Henry Redfield, of New York, in the State of New York:

*Now this Indenture witnesseth*, That the said John B. Newbrough, for and in consideration of the sum of one dollar to him in hand paid, and of the covenants and agreements hereinafter contained, and to be performed by the said Goodyear Dental Vulcanite Company, has agreed to sell, assign, and transfer, and has by an instrument of even date herewith, sold, assigned, and transferred to Henry Redfield, his heirs and assigns, the said several Letters Patent above mentioned, and the inventions described therein, so far as the same relate to, or are capable of being used for, dental purposes, or for the manufacture of artificial plates or other structures for setting artificial teeth, or other uses connected with dentistry, but for no other use or purpose.

To have, and hold, and enjoy the said patents and inventions, for such uses and purposes, but not otherwise, during the existence of such Letters Patent, within the United States, as fully and entirely as the same could have been held and enjoyed by the said Newbrough had this sale and assignment not been made; and

*Whereas*, Letters Patent of the United States were, on the nineteenth day of January, A.D. 1869, issued to Robert Haering, numbered 85,997, for a "New Mode for Mounting Artificial Teeth," which said Letters Patent were on the ——— day of ——— assigned to said Newbrough, who is now the owner thereof, which said Letters Patent are believed by said Company to be illegal and invalid, although this cannot be known with certainty until the question is settled by a judicial decision; It is therefore agreed that if said last-mentioned Letters Patent shall be decided to be legal, then the said Newbrough shall, by a good and sufficient conveyance, convey and assign said Letters Patent and invention, and all rights thereby created, to said Company, or to such person as they may appoint or direct; such assignment, however, shall not take away or impair the rights of any persons to whom said Newbrough has given licenses to use said Haering patents before this date.

* * * * * * * * * * * *

The said Company, for itself, its successors, and assigns, further covenants and agrees to give and grant to such persons as may be designated or nominated by Mr. Henry E. Fickett, five dental licenses to make and use hardened rubber, gutta-percha, and similar gums, for dental purposes, such licenses to be granted, or renewed, so long as said Company, its successors or assigns, shall continue to grant similar licenses to others. * * * * * * * * * * *

It is agreed that the suits now pending between the Company and said Newbrough shall be disposed of as follows: The suit upon the patent of Nelson Goodyear, in which the question of the infringement by the use of iodized rubber is raised, shall be dismissed without prejudice or costs to either party; in the suit against said Newbrough for infringing the Cummings patent, a final judgment for the complainant shall be entered, with nominal damages. The suit for the repeal or setting aside the Haering patent shall be left to the Court for their decision, whether the Haering patent is legal and valid or not.

* * * * * * * * * * * *

The licensees named by said H. E. Fickett, and made a part of this contract of settlement, are John B. Newbrough, New York; —— ——, of New York; —— ——, of Brooklyn; B. E. Gardner, of Providence; and —— ——, of Cleveland, Ohio. In case of the death of any of these parties, no other is to take the place. But of the persons here named, no sum of license fee shall be demanded which shall exceed in amount the sum accredited to each, during the continuance of the patents.

CHAS. E. HILL, witness. J. B. NEWBROUGH, [L.S.]

JOHN L. COBB, witness.
HENRY E. FICKETT, [L.S.]
JOHN H. CHEEVER, Pres. G. D. V. Co. [L.S.]
JOSIAH BACON, Treas. G. D. V. Co. [L.S.]
GOODYEAR DENTAL VULCANITE CO. [L.S.]
by J. H. CHEEVER, Pres.

## COPY OF A LETTER FROM JOSIAH BACON, TREASURER, TO BENONI E. GARDNER. ORIGINAL IN POSSESSION OF S. S. WHITE.

GOODYEAR DENTAL VULCANITE CO., JOSIAH BACON, TREASURER.
No. 5 Temple Place, Boston, Mass.
No. 38 Park Row, New York.

BOSTON, September 21st, 1870.

DR. BENONI E. GARDNER, Providence, R. I.

DEAR SIR,—I have had some conversation with Jabez Holmes, Esq., my attorney, in regard to the appeal of the suit decided against you, and your liability for the costs thereof.

I will therefore say to you, frankly, that though the suit is against you in name, yet Dr. John B. Newbrough is the real defendant in the case, and is defending it, and you are only the nominal defendant. I do *not*, therefore, hold you responsible for the costs, etc., but I do most distinctly hold said Newbrough responsible for both costs and damages to the uttermost dollar.

The suit was appealed by Newbrough in your name, as both parties thereto wished the matter passed upon by a court of final jurisdiction, as the patents of Newbrough are either paramount or subordinate to ours, and the question must be fully decided.

In regard to your own position, permit me also to add, that you are now under perpetual injunction by the United States Courts, forbidding you the use of any rubber whatever, either iodized or any other kind, and any use thereof by you will subject you to a heavy punishment by the court.

Your neighbor dentists have often told me you were using, but I paid but little heed thereto, in view of your position as defendant in this, but let it pass by.

Understand me now, however, *very distinctly* to say, that proof of a *single plate made by you after this date*, I will instantly act upon, and lay before the court, demanding an exemplary penalty. Be very careful now, therefore, of your acts, for you are fairly warned, and can ask no consideration.

I advise your calling to see me at this office at the earliest opportunity.

Yours respectfully,
(Signed) JOSIAH BACON,
*Treasurer.*

We request of our readers a comparison of this letter, written September 21st, 1870, with the extracts from the contract of agreement with J. B. Newbrough, made July 1st, 1869, in order that they may appreciate how easily Mr. Bacon CANNOT tell the truth.

S. S. W.

### SWORN STATEMENT OF DR. B. E. GARDNER. ORIGINAL IN THE POSSESSION OF S. S. WHITE.

*State of New Jersey,* } ss.
*County of Ocean.* }

I, Benoni E. Gardner, formerly a practicing dentist in Providence, Rhode Island, and now retired from practice, and residing near Bricksburg, Ocean County, New Jersey, do make and execute the following statement, to wit: That touching the suit in the First Circuit Court carried on against me, and known as the case of The Goodyear Dental Vulcanite Company, of Boston, and Josiah Bacon *vs.* Benoni E. Gardner, I never was and never supposed myself to be a veritable defendant in that suit, nor in the appeal thereof to the Supreme Court of the United States. That I allowed the case to be carried on by my friend, Dr. John B. Newbrough, of New York, because I was his licensee. That all the first stages of it were managed and paid for by said Newbrough. *I made the appeal at the request of Mr. Jabez Holmes, acting as agent or attorney of Josiah Bacon,* because he promised me a protection from Bacon, and told me that the appeal was desired by both parties. Dr. Newbrough was spoken of as the other party, I was only considered as nominal defendant. I never paid one dollar costs or expenses, and never considered that I had a dollar of interest in the decision.

I received a paper in writing from Josiah Bacon, Treasurer of the Company, which I considered made me safe from being put to costs or to pay any damage if the suit was decided in their favor. I never had any thought or idea of the reason for the appeal than what Mr. Holmes told me, until recently.

I now think I was deceived about this, and believe that my name has been used to carry this suit ever since Dr. Newbrough settled with the Company, as if I was the defendant, when I was not such in fact. Yet I did not knowingly or willfully consent to the collusion with the knowledge that doing as I did would be aiding the Bacon party to sustain the Cummings patent against the dentists. I say that I supposed the appeal was made to determine whether the Haering patent, owned by Dr. Newbrough, or the Cummings patent, owned by the Goodyear Dental Vulcanite Company, had the best title, and that idea was what was in my mind when I agreed to sign the appeal.

(Signed) BENONI E. GARDNER.

Subscribed and affirmed to before me, a Notary Public for New Jersey, this sixth day of June, 1872, at Bricksburg, N. J.

(Signed) ALBERT M. BRADSHAW,
[SEAL.] *Notary Public for New Jersey.*

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### [EXTRACT FROM A LETTER.]

BRICKSBURG, JUNE 13th, 1872.

S. S. WHITE:

DEAR SIR, * * * * In reply to your question, If I know Henry W. Gardner, I would say that I do not. * * * *

(Signed) B. E. GARDNER.

## LETTER FROM SAMUEL J. GLASSEY.

This was the only reply elicited by the note in which we offered to give General Foster five hundred dollars if he won the case on Gardner's appeal:

19 PARK PLACE, NEW YORK, March 20th, 1872.

SAMUEL S. WHITE, ESQ., Philadelphia.

SIR,—The communication which you sent to my friend and partner, General Foster, dated 16th inst., was handed to him, as you doubtless intended it should be, a few minutes before the opening of the Court, and while he was preparing for his argument.

As I am his associate in the case, have acted in it with him since September, 1869, sharing his labors and responsibilities, and participating in his earnings, that letter applies to me as well as to him.

It presents very grave questions, which I do not now propose to argue, but to state. If the statements contained in your letter are all true, and its insinuations justified by the facts, Foster and I are unfit and unworthy to practice our profession. If your statements are not all true, and your insinuations are not justified, you are unfit for, and unworthy of, association with, or recognition by, honest men, in any relation of life.

Which party is right must be determined. You will be invited to attend a conference to be held in this city within a few days, at which a report will be made of what has occurred at Washington. Your letter will be read and commented upon.

I hope you will attend, as I have some remarks to make which I would prefer to make in your presence.

Your obedient servant,
SAMUEL J. GLASSEY.

"Salt is good, but if the salt have lost his saltness?" !!!

We print Mr. Glassey's letter *verbatim*, as a *bonne bouche*.

We never made any insinuations. All our statements are now proven irrefutably. To ask Mr. Foster to execute the Junior's judgment would only provoke another "smile," or at most an answer which contained neither confession nor denial.

Mr. Glassey is cooler now than when he wrote the above. If, however, on seeing the proofs, he cries, "*Mea culpa*, 'I am unfit and unworthy to practice our profession,'" who will controvert it?

S. S. W.

THE

# DENTAL COSMOS.

VOL. XIV. PHILADELPHIA, JULY, 1872. No. 7.

## ORIGINAL COMMUNICATIONS.

### DENTAL PATHOLOGY AND THERAPEUTICS.

BY J. FOSTER FLAGG, D.D.S.,

FORMERLY PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS IN PHILADELPHIA DENTAL COLLEGE.

[Entered according to act of Congress, in the year 1872, by J. Foster Flagg, D.D.S., in the Office of the Librarian of Congress at Washington.]

(Continued from page 294.)

IN order to present to the mind, as clearly as is possible, the variation to which inflammation is liable, it is divided into several classes, each deriving its appellation from some peculiar characteristic, as *sthenic* and *asthenic*, *phlegmonous* or *circumscribed*, *diffused*, *erysipelatous*, etc., and it is also classified, with regard to its duration, into *acute*, *subacute*, and *chronic*.

When the course of inflammatory action is rapid, and either terminates favorably in resolution, or runs quickly on to suppuration, it is said to be "acute." The period within which it may be strictly classed as such varies from a few days up to *three weeks*, but if it exceeds this length of time it is then denominated "subacute;" if, however, it still continues, and so long a period as *six weeks* passes without its having abated or changed its true inflammatory character, it is then said to have become "chronic."

*Acute inflammation* is found to be the most violent of the three; it is usually presented in those individuals whose general health is good, whose functional powers are high-toned, and whose very excess of vitality is the incentive to the hurried progress of recuperation or more serious complication. That this naturally would be the case will readily present itself to the mind if it is remembered that we have considered "disease" to be a perversion of nutrition, and its concomitants to be due to the effort of "life" to restore a natural condition; for, the more powerful the general systemic condition, the greater would be the efforts calculated to relieve, and the more prompt and decisive the induction of the various phases which are found to be requisite for the establishment of normality, or, on the other hand, the more immediate and marked the deviation from health as the result of the continued action of an irritant. This position we find sustained by facts; and so evident is this, as to have made it not only observed by those who, from education, are calculated to remark and reflect upon it, but even to have so forced itself into general notice as to elicit the daily comment, "Sickness goes hard with him, *because* he has always been so well before."

We have, then, the acute form of inflammatory action exhibited in patients who belong to the class which will be recognized, from what has previously been mentioned, as Plethoric and Sthenic.

This form of inflammation, *if extensive*, is attended with much febrile excitement, and its products are usually profuse in quantity and distinctive in quality, being secretions of serum or mucus, effusion of coagulable lymph, and, if resolution is not effected, the rapid formation of "pus."

This form of inflammation, *if not extensive*, assumes the type which is called "phlegmonous" or "circumscribed," and is commonly exemplified by what is technically termed "furuncle," or, in common parlance, "a boil." With the general characteristics of these troublesome and painful formations almost every one is practically acquainted from personal experience, and I need therefore only mention that its distinction is its prompt inclosure by an effusion of lymph, and its speedy termination by resolution and absorption, or by suppuration and discharge of matter (pus).

Intermediate, we have the peculiar, diffused, and yet acute form of inflammation called "erysipelatous;" while contrasting, in almost every particular, with acute, sthenic, and phlegmonous inflammation, we have chronic, asthenic, and diffused inflammation.

I have said that when inflammation smoulders, as it were, for a period longer than *six weeks*, without assuming indications which betoken some one of what are called its "terminations," it then becomes "chronic." It may be caused by any excitant which would give rise to acute inflammation, and it may even originate in that form of disease, in consequence of an asthenic condition of system precluding the removal of excitement and vascular obstruction consequent upon previous irritation.

While it may be necessary to ascribe the distinctive results which are associated with that peculiar (diffused and yet acute) form of inflammation denominated "erysipelatous" to a combination of specific poison and debility, it seems sufficient to attribute the cacoplastic or aplastic character of the effusions of ordinary forms of chronic inflammation simply to want of vitality, and thus we find resulting depositions of tubercle, consolidation of glandular structure and the parenchyma of organs, caries of the bone, etc.; but while we find these as one phase of the results of chronic inflammation, we also find another phase denominated "hypertrophy," or greatly increased nutrition, evinced by exostosis and other morbid growths. This it is well for us to bear in mind, in order the more clearly to apprehend our subject when we consider enlargements of this character pertaining to the teeth.

*Cause of Inflammation.*—It will, I hope, by this time be recognized by my readers that we cannot consider any irritant (mechanical, chemical, or vital) as properly classified if considered as a cause of inflammation; but the universal cause of inflammation is the *sufficient continuance* of any cause which the sequence shall show to be *sufficiently irritating.* It must be held constantly in mind that deviations from a normal condition must be consecutive,—that changes are rapid or slow according as irritants are powerful or weak, and as systems are responsive or otherwise,—and thus in viewing every case of inflammation, all its antecedents, as already laid down, must be thought of and recognized; but there is one cause of irritation to which I desire, at this time, to direct your attention, that from its frequency and importance I felt desirous to reserve until we had reached that point which would render its discussion most useful. I refer to "Changes of Temperature."

The terms *heat* and *cold*, when used pathologically or therapeutically, do not refer to any particular degree of temperature, but comprise all degrees between 32° F. and 48° F. for cold, and 100° F. and 180° F. for hot. The action of relative heat and cold upon inanimate things is to produce a correspondence of temperature, but organisms possessed of vitality resist this consummation, each according to its strength; continuous application of heat until the temperature of a living body is raised to 180° F., destroys vitality by coagulating the albumen of the blood; continuous withdrawal of heat until the temperature of a living body is reduced to 32° F., destroys vitality by congealing the water of the blood. We have, then, to consider the effects which may result from changes within these absolutely destroying bounds, and which are still relatively hot and cold.

Heat which is insufficient to destroy vitality is, according to its intensity, proportionately stimulating, and the knowledge of this fact must render it unnecessary for me to extend my remarks to any great length in order to show how it may produce inflammation. We have already seen that stimulants tend to establish a determination of blood to a part, we have found how easy is the transition from determination to congestion, and from congestion to inflammation, and it seems therefore useless to do more than state that a sufficient degree of heat applied for a sufficient length of time will cause inflammation; still, it remains for me to recall some familiar proof that the action of heat is stimulating.

Remembering that the first effect of stimulation is to cause an increased action generally if of general application, and locally if of local application, we have but to experience the frequent pulse, the flushed and heated surface, and the increased sensibility which follow the application of moderate heat, as the hot bath, or near approach to a glowing fire, to stamp this temperature as a stimulant; but these effects are marked in their character only in proportion to the low degree of heat (cold) to which the individual is habitually exposed. To the inhabitants of the polar regions we find almost insupportable a degree of heat which would be regarded as moderate by those of more genial climes; and this same temperature, which would be to the former exhausting and to the latter pleasing, would cause the sunburnt native of the tropics to shiver with cold.

Thus, whenever the effects of changes of temperature are viewed pathologically, or even therapeutically, the habits and powers of endurance of the patient, as well as the climate of the locality, should be kept constantly in mind. It should never be forgotten that man, with all his boasted superiority over other animals as regards endurance, enjoys the advantage of ability to procure proper clothing, to prepare food conducive to his requirements, to provide means for heating and cooling, and that he suffers much in the absence of these; and therefore, during the treatment of disease, attention should be given by the practitioner to insure upon the part of the patient that additional observance of care which shall act to protect against the deleterious influences of changes of temperature. We must also recollect that the injurious effects consequent upon these changes are by no means in proportion to the magnitude of the variation, nor to the duration of exposure, for the most severe shocks are oftentimes not only harmless, even to those who possess but limited powers of resistance, but are, on the contrary, beneficial, by tending toward the establishment of vigor, while apparently trifling exposure to slight variations of temperature not unfrequently provokes to the most serious results. From these facts it behooves us to consider well what the effects may be locally of that which possesses such diversified power generally.

Therapeutically, even the most ignorant are aware of the occasional utility of both hot and cold applications; and how constantly do we have patients relating to us their experience in the "ice-water" and "hop-poultice" direction,—applied in total ignorance of the cause of trouble, and in like ignorance of everything except the *possibility* that they may afford relief. It is for us to be aware, from examination, of the true cause of trouble, for us to know whether the application of heat or cold will be likely to afford relief, and, if so, for us to say which should be employed; to direct the proper method of its appliance, to prognosticate the result which will ensue, and to know what we can of the gradations through which we arrive at the end desired.

I have said that relative *heat* is stimulating, and it will therefore be recognized that in "sufficiency" it can induce inflammation; and I have now to point out that relative *cold* may, under certain circumstances, produce a like result. Cold would naturally be regarded as sedative or depressing, from the knowledge that heat is stimulating; this is true, and so long as cold applications insufficient to destroy vitality are employed, no inflammatory action occurs: vitality diminishes in power, congestive swelling supervenes, externals present a bluish-purple color, sensibility is impaired to that degree which is called "numbness," and all indications are antiphlogistic; but, as I have said, its improper application may add to, or even induce, inflammatory action. The impropriety which is liable to produce this result is insufficient duration of application—*insufficient duration of application.*

In order to make this clear, I must briefly refer to what is termed "reaction." Almost every one is familiar with instances in which extraordinary physical feats have been performed under peculiarly exciting influences, and equally aware of the proportionate "prostration" which follows such exertions. This prostration is due to the inability of any part of the system to continuously supply excessive demand upon its resources, and it therefore becomes necessary, as the result of greater or less exhaustion, that more or less *time* shall be given for the purpose of recuperation; the scattered forces have, as it were, to be gathered again together, the overtasked energies require to be relieved from their burden, *repose* (replacement of properly prepared atoms) is demanded. Inflammation is a condition of things which has been seen to have been induced by long-continued peculiarly exciting influences; vitality has been called upon for the maintenance of systemic or local integrity, and has responded in an extraordinary manner, though seemingly unavailingly. Aid to nature must be given, and "cold," for its constringing, strengthening, sedative qualities, is employed; through these it gives relief, by these overtasked energy is lightened of its burden, and, by its *continuous and persistent application*, time is given for the gathering together of new and proper components of tissues, which are thus rendered equal to self-support when left unaided.

This "prostration" which I have mentioned, is of longer or shorter duration, and is more or less absolute, just in proportion to the magnitude of the exciting cause and the strength or weakness of the vitality of the individual; but if the system has the requisite strength to successfully combat (either alone or aided) the shock it has received, sooner or later "normality" is apparently re-established.

# EXTRACTING THE WRONG TOOTH.

Read before the Massachusetts Dental Society, April 9, 1872.

BY J. T. CODMAN, D.M.D., BOSTON, MASS.

I TAKE for my text the extracting of the wrong tooth. I have no doubt I shall wander from it, but that is a privilege that all have who take texts. I take it also as a captivating head to my article; for if ever a man does feel mean, it is when, expecting to be relieved of his misery, and get rid of a poor, decayed, disagreeable, foul, uncomfortable snag, that, in the phrase of a sailor, "bites like a bloody lobster," he puts his index-finger into his mouth and finds the old hulk remaining and a sound ivory gone. I cannot now paint the picture; the anger, the disgust, the contempt is not equaled by the feeling of loss,—of being crippled for life in the grinding apparatus,—a feeling that where there should be strength there is weakness, and that something important has happened to him which it seems at that moment he will never recover from,—and he never does, though the sting may be gone, and the mouth, tongue, and system in time get accustomed to the change.

This is the extracting of the wrong tooth. Ah, woe to the unlucky dentist who makes such a mistake! He may revise the judgment of his patients a hundred times. He may say to his patient or caller, "You are mistaken in the tooth you think aches." He may by his advice save hundreds of teeth that were pointed out to him as the right teeth to extract. But if, by an unlucky slip or by a fatal mistake, he diminishes the number of teeth in his patient's mouth by one, absolutely the wrong one, woe to him!—ass, bungler, brute, clown, dog, fool, and so on through the alphabet.

But it is not to this particular point that I wish to call your attention now. To the honor of the profession to which I belong, such extractions are rare, except among the careless students and operators that sail under our professional name. But there is another class of extractions, and yet another, that are as much the wrong teeth to take out as if the dentist had made a bungle of it by slip of the instruments or by carelessness. The teeth may be taken out by ignorance, or on wrong principles, and be as much a loss, a disaster, to the patient, who, instead of blaming the dentist, thinks he is enduring "high science;" and he may never waken from his woeful mistake, but place his children and wards in due time on the same martyr-rack.

I propose to give some examples of the wrong extraction of teeth, and will call upon some familiar cases in my own knowledge where teeth were extracted, and some where they were not, with some of the reasons *pro* and *con;* but first let me tell you why I was led to prepare this paper.

I was a short time ago at a dental society meeting, and I heard at the close of the meeting a dentist, neither the youngest nor oldest of the members present, make the remark that he had lately taken out a sound tooth to ease pain or toothache, and it cured it. He also described the condition of the interior of the tooth by examination after extraction, by splitting it in halves, finding in the interior nodules of dentine that seemed to encroach upon the pulp.

I confess to a feeling of pain in hearing that statement,—a truly *professional* feeling,—the same feeling that an educated surgeon would feel if he heard some surgeon say, "A poor man came into my office with a severe pain in his finger, and I cut it off. It cured it!"

But the statement gave me pain for other reasons. There were present older men, men whose look is venerable. There were professors of dentistry, and practitioners, and not a solitary voice lifted itself up to say, "My dear sir, you have taken out a wrong tooth;" or in better phrase, "You have wrongly taken out a tooth." Every one present seemed to give assent, as though it was just the right thing to do. Being occupied with business matters, I could not readily attend to making the necessary explanations, but will endeavor to do so now.

I cannot believe that my fellow-practitioner would be left in his ignorance, did the profession understand the reason why that tooth ached; and yet the cause was so simple that it was overlooked. I have not seen tooth nor patient; I know nothing more of its history than the statement I have made; and yet I am as certain of its cause as any physician is in his diagnosis of a disease,—of the cholera, smallpox, or diphtheria. The physician *may be* mistaken; but describe the case accurately, and he will tell you what it is,—for all that the books tell of diseases, except of their cure, consists in accurately describing their symptoms and stages.

Now, the gentleman who lost his tooth had simply a lame tooth, and the cause of it was overwork or crowding,—nothing else; and I venture to say that the dentist who extracts such a tooth a few years from this date will be liable to a suit in law for malpractice. He would be now, if those who knew better had raised their voices to inform those who knew not, and those who have been pulling apart in the profession had worked together for its interests.

In recalling to yourselves the motions of the jaw, you will be reminded of two motions: the "stamping" or pounding motion of the under teeth against the upper, and the "mulling" or grinding motion, or lateral motion, as it is usually called, of the teeth over one another. The tooth was made lame by one or both of these motions,—most probably by the pounding or blows given to it by the under teeth, the molars being lost or misplaced, giving the upper tooth an increased blow from the closer approximation of the two jaws. In vain it resisted: the secretion of dentine was stimulated by the increased pressure and irritation of the pulp vessels. It commenced to build a strong barrier against encroachments to obliterate its own sensitiveness. The nodules of secondary dentine found in the pulp cavity were proof positive of the healthy action of the tooth, of its vigor, of the vitality of the bone-making membranes; and if it cried out in pain when it was pounded, it is no more than men do when they are beaten.

If we translate its cry, it meant this: "I am badly hurt; oh, dentist! come, and with your file and scraper cut away the thumping thing that hurts me, or alter my own form so that it can't reach me to harm me. I have enough and to spare, and I am making more every day. Come and relieve me, but do not take me away; for if you do, those of my arch that are left will have to be hit harder, and in a little time they too will cry out in pain. Be reasonable, oh, dentist! or I shall be lost, and all of my companions will follow!"

This case is a sample of hundreds of cases that have happened in our city within a year,—not all with such sad results. Many of them cured themselves by nature's processes: by loosening, by changing position, by ulceration; but the forceps have taken a lion's share, and the best tooth, the supporting tooth, the hard-working tooth, has been doomed to destruction. In all of these cases, the file—much-abused instrument, both by dentist and patient—and the hardened-steel cutter must be the instruments of salvation. At some future day I propose to speak of the file in its relation to curing aching teeth, but must now confine myself to my present subject, mentioning it only incidentally as in a case like the following, where the wrong tooth was not taken out. Miss H., a young lady with almost a perfect set of teeth, called at my office to complain of their aching; though she could not locate the pain. I searched carefully for cavities, but found none. But an under wisdom tooth was endeavoring to crowd its way up into the arch, and I decided that it was the cause of the continued pain. She remarked that she must then have it out. Examining the case carefully, I told her that I thought not. I explained to her its relation to the other teeth, and the reason why it could not come up to its place. It wanted a little room that it could not get, as the great boulder in the flume at the White Mountains wants only a couple of inches more space to come thundering down the chasm. The cusps of the teeth were polished to a glisten where they crowded together. A few touches of the magic file, and the patient, of her own accord, spoke of her relief, immediate and permanent. As it was some months since, I claim it to be permanently cured, as I have not only "*not seen* her," but have heard that she has had no more pain.

The extracting of the under wisdom teeth in such cases is oftentimes very painful to the patient and very troublesome to the dentist, and is an operation dreaded by both. Had I taken out this wisdom tooth I should have taken out the wrong tooth, or wrongly taken out a tooth, and yet how many times these teeth are wrenched with much labor from their difficult position in the jaw by dentists, when a painful operation might be saved.

Still other cases of extraction, as follows: Some tooth aches; it has a cavity in it. A mongrel dentist puts in arsenic: the nerve is destroyed. The tooth is then half filled: it turns black. The patient has an affection for it, and doesn't want to have it out, but goes to an educated dentist, feeling that he or she has been wronged before. It is a miserable-looking tooth, and is condemned at once. He don't care to save such a poor-looking fellow; it don't seem worth while. Ah, but what is to be done if it is lost? Do without, of course, for we have not skill enough to make a *practical* substitute in all cases.

Mrs. C. came to me. She had a dark, almost black, under second bicuspid tooth. It had been filled and refilled with amalgam. It ached with that dull, grinding pain so wearing to one's body and mind. I looked at it and condemned it. Great as was my belief in saving teeth, I doomed it; but, on reconsideration, I filed away the surfaces where it struck the upper tooth, and relief came at once; and from that day to this, as she assures me, it has never troubled her at all, and it is now more than a year since. Had I taken out this tooth I should have taken out a wrong tooth, or wrongly taken out a tooth; and of this class of teeth, thousands of which might remain and be useful, not one in a hundred—I might say not one in a thousand—is saved by the dentist.

But the most important topic under this head relates to the extracting of certain teeth for uniformity,—the six-year-old molars, so called.

It has been the habit of many of our noted older dentists to extract sometimes three molar teeth perfectly sound and good, because, forsooth, the fourth tooth was decayed. There have been honorable exceptions who objected to this practice, but, to my belief, no one who has lifted up his voice, clear and loud, to let the people know of its barbarity, its inhumanity, its uselessness, its worse than uselessness, the false theory on which it is founded, and the bad results that follow. I had hoped the fallacy would die out with the generation that precedes us. But a few days ago I found it cropping out in the statement of one of our honorable members, whose position and whose relation to the dental school of New England make it important that his theories be correct, or upon the rising generation will be entailed, to the extent of his teaching, a misfortune which his predecessors have laid on the present generation, and which he has as yet not fully appreciated, but which I premise he yet will denounce as one of the utter fallacies of the past immaturity of the dental art and theory.

I was pained to know that he practiced such theories, but more sorry that he should in this hour of light attempt to spread and propagate them.

This, then, is the theory as I understand it. If, by any accident, it is necessary to extract one of the first molars, the other corresponding molars should be at once taken out without hesitation, in order to even the jaw and make the arches develop alike.

As I understand the theory, it is this, put in relation to another part: if by misfortune a young lady should injure the little toe of her right foot, and it should be amputated, she should have the corresponding toe of the other foot taken off so that they should develop evenly and alike; or if her right ear be scarred, the left should be also scarred. Now, common sense teaches that it is a misfortune to lose one toe, and that by all means the mate to it should be kept, even though the two shoes do not exactly correspond.

Will it even the two jaws? It may, and it may not: that depends on many things, but first, *the conformation nature intended, the plan of which, at the age proposed to take out these teeth, is not developed.* Secondly, the *evenness of the arch depends almost entirely on the articulation of the teeth*, and with proper articulation the jaws can come together in proper position with four teeth or forty. As in the preceding cases the articulation was the cause of toothache, apparently of different kinds: acute like pulpitis, dull like periodontitis, and heavy like alveolar abscess, proving that by the closure of the jaws alone the teeth may be thrown into awkward trespassing positions. Among the most prominent causes of this trouble is the loss of the first molars.

There is another reason given by some for the extraction of the six-year-old molars: the frail and almost temporary nature of these teeth. I do not think it worth while to argue this point. A dentist who would make that statement should be sent to the primary school to learn the A B C of physiology and anatomy, to our rising college,—anywhere where he could judge anatomy by common sense, or learn a little by teaching, if his observation is so obtuse that he has not by his practice seen otherwise. That these teeth are frail I will admit; but my observation teaches me that they have great recuperative energy in them, and that far from being in any sense temporary, except frail, they are the most central and the most important of the molars, upon which the character of the mouth depends. They are the advanced guard that protects the little company that follows; they keep off the muscular strain from the bicuspids, and prevent in many cases the closing up of the bicuspids toward each other,—the very opposite of which is taught by the men who extract these teeth; they keep the superior incisors from being pressed forward in the mouth, or, in the reverse, they keep the inferior incisors from being pressed inward, and ought almost without exception to be preserved. With all the means at hand, with all the variety of compositions now prepared, they can be saved as surely as any other teeth. Fill them and save them. Temporize with them, fill them with os-artificiel, Hill's stopping, or amalgam,—that important addition to every dentist's curriculum. Though sneered at by the older school of dentists, though condemned by an undiscriminating public and by the many superficial teachers of the present day, its usefulness denied in the face of overpowering facts, weak-headed old fogies ply their patients with its hurtful qualities, and the ladies go home with the profound conviction that a small bit of amalgam placed in a tooth in their young days, that has preserved it a decade or more of years, is undermining their health, and they sit down in their parlors with their mantel- and pier-glasses, with perhaps from thirty to a hundred square feet of surface amalgam on them, to live with, to breathe the air from, in summer and winter, hot or cold, wet or dry. If the material was as stated, here would be a chance for the dentist and physician also, and a looking-glass would be an affliction in the family.

Our dental journals are full of statements like this : "Every tooth that can be saved with amalgam can be saved with gold." The statement is utterly false. It is made to bolster up a practice that says to the patient, "*gold* or *nothing.*" It reminds me of a noted character of Thomas Hood's,—this manner of over-estimating the true value in use of gold filling. The patient's mind is so bewildered that, like Miss Killmansegg,

————"When it came to fitting the stump
With a proxy limb, then, flatly and plump,
  She spoke in the spirit olden :
She couldn't, she shouldn't, she wouldn't have wood,
Nor a leg of cork, if she never stood ;
And she swore an oath, or something as good,
  The proxy limb should be golden."

But to return to first principles. I make this statement, and no dentist of knowledge will deny it,—*that the extraction of any teeth from an undeveloped jaw has the tendency to contract it and to stultify its growth.* If so, do you wish to contract the arch ? How do you know when you extract these teeth that the rest will develop ?

Miss ——, the daughter of a clergyman of this city, had a left under molar extracted by one of our patriarchs. He was about to extract its mate on the right, when the young lady arose from the chair and would not have it done, although it was insisted upon by the dentist,—and she saved the tooth. What was the result ? The second bicuspid never erupted on the left side. If the molar had been lost, what a crippled jaw she would have had !

Let us examine the probable results. The under jaw is hung entirely on muscles. The contraction of the muscles is alike on both sides. If the teeth are lost or partly lost on one side, these contractions bring an unequal strain on the weak side; if the molars are gone, on the bicuspids; if they are not very firmly placed, they are dislocated, loosened, and then lost; if they are firmly placed, an unequal wear is upon them, and they begin to shorten: this produces a shortening or contraction of the muscles, which, after a time, shows itself in the countenance, and after the cusps of enamel are worn off the wear increases in rapid ratio. The end is not yet: the wear now comes on the eye-tooth and central and lateral. They shorten and disfigure, and that horrid dream of an artificial set begins to be coming a little nearer home. The dentist is consulted. He can do some things, but can't make a plate that will fit on one side; it must go across the mouth. Yes, he can do it; but the patient must not expect comfort. It must be for show principally. He mildly suggests that if the teeth were all out something might be done, and the lady goes home and tells her friends that her teeth look so horridly she has a great mind to have it done. This is no fancy picture—this is the absolute truth,—an occurrence that takes place almost every day in some of our cities and towns by premature and careless extractions.

I have in mind also a lady who was advised to have out the four molars to even the jaw, but the gentleman who went to the office with her could not see it in the same light, and took the patient away. She is the mother of children now, and her teeth are in an excellent condition, and no harm, but much benefit, is derived from keeping them.

My attention was arrested some time since by the statement made by an able professor in a certain medical school not a thousand miles from here, that the jaws of the present generation were contracting and were growing gradually smaller. Let me ask a question,—Where did that gentleman get his information? I know and have often been pleased by his aptitude for picking up facts and information on various subjects, and also with his desire to be ever a student, though graced with a professorship; and I judge his information came from his family dentist.

Did his family dentist ever think, as he looked over the narrow jaws of his young patients, that his chickens had come home to roost?—that the many years of practice, and the over-confidence of his patients in his theories, had worked its result?—its sad result, I may say. How many of those young patients born in the lap of luxury had the tendency to narrowing jaws occasioned, in the first place, by overheated rooms, and unnatural hours, and want of simple, childish diet; and have had them more contracted, the roots of the tongue thrust down farther in the throat, the voice altered, and the tendency increased for throat diseases, by this dental barbarism!

Here let me state how so-called science is sometimes built up. Who first started the theories I combat, I know not. But our worthy professor says that the jaws of the present generation are contracting. His good name is everywhere known where the English tongue is spoken, and his writings are household treasures.

Mr. Darwin evidently believes in the professor; for he quotes his words to sustain his theories, his science. And to-day the whole world reads that the American jaw is contracting, on the authority of Darwin, sustained by one of our own best-known anatomists; whereas it is only the result of false theories put in practice by dentists who in the immaturity of their science have produced the result of contracted jaw.

But I mean that these theories shall be exploded,—here in Boston, at least. I know that there are some explanations that I have neglected, and some unheard; but I lay down the principle, from which there is no appeal, that extracting the permanent teeth from the undeveloped jaw always produces contraction,—contraction of the alveolar arch of the face and more or less alteration of the features.

Among the able members of the profession who sustain the position I have taken, I take the liberty of mentioning the name of Dr. Arthur, who, in his new work, "On the Prevention of Decay of the Teeth," says, substantially, that the observation of twenty years has proved to him that the theories of the extractionists are not sustained by practice.

That we may all gain more knowledge than our predecessors had on these important points of dental science, and that we may learn to apply that knowledge to the benefit of the suffering, is my wish and doubtless that of all whom I now address.

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## FILLING TEETH, INSTRUMENTS AND MATERIALS.

Read, by appointment, before the Second District Dental Society of the State of New York, January 9th, 1872.

BY GEO. A. MILLS, BROOKLYN, N. Y.

Mr. President and Gentlemen:—The subject before us for discussion is one of vast importance. It is threefold in its nature,—embracing in itself the manner of the operation, the instruments for the accomplishment of it, and the materials to be used.

We fill teeth that we may arrest decay, save pain, secure cleanliness, assist in mastication, preserve the anatomical contour of the mouth and its contiguous parts, retaining the true expressions of the face; to assist the vocal organs, that they may give a "certain sound," and, in fact, that nature may more ably dispose proper nutrition to the organization of which they form a part. This question arises,—

How shall we best fill teeth to subserve these ends?

So long as there exist individualities so distinct (as we find them in our profession), just so long will there be a variety in methods.

The mind of man is so capable of being influenced by surrounding circumstances as to give *much* of the character (to the individual results) of those present at the moment. So do we, though we may not heed it, or know it, put out our standard for the use of those we mingle with. This truth is truly developed in *all* the acts of life. The conception of the mind is *always* in advance of the results brought out.

If the circumstances under which we fill teeth be favorable, they will greatly assist us to bring out good results, and the opposite will do much to retard, without there shall be brought to bear such helps so potent as to utterly neutralize *all* opposition, and give untrammeled play to the faculties required to work out the results desired.

The first thing to consider, in the filling of teeth, is the condition of the case in hand,—its true *status*, arrived at by a faithful and intelligent diagnosis. This *should* be the starting-point always to be observed by us before any prognosis can be given. In this is needed more than a knowledge of the laws of mechanism. A Solomon in mechanics may be a ninny regarding the law of human organization coupled with the vital force (or spirit).

The mechanism required for the filling of the teeth will, if it transgress the law of vital force, be reminded of the infraction of another law, that its own may be allowed. That we may be successful, the law of affinities *must* be regarded.

To diagnose a case for filling, we must notice the state of unhealth, its structure, its location, and its importance to its possessor (which may be varied). The state of unhealth must be changed to its normal standard. By so doing we are able to combine such agencies as will permit the tooth to extend its period of usefulness in its lot and place. When I say a normal standard, it only applies to the individual case in hand. We do not see a perfect state of health in any case. Thus the degrees of health are tabulated on a rising scale. No one can diagnose, as a rule, at a glance, or often by an examination, short of the complete preparation of the tooth for filling. When this is done, we have arrived at a point where we can act intelligently regarding the filling. Any amount of *parrot teaching* will not reveal much light to an uninstructed mind in the underlying principles of health and disease. This knowledge must have been received and made an agency of the mind, that it be a safe guide from which to act. By this I do not mean to give the impression that demonstration does not impart *real knowledge*, and yet, if it only meets the eye, it is simply ocular, and will not suffice as a guide in general practice.

How to subserve the purposes for which teeth are filled, which I have referred to, will be by such methods and means as will come under the different ranges of individual ability, and the highest degree of efficiency will be secured by the highest grade of knowledge. In a word, *I* should say, first fortify the tooth with all the health possible; then reduce the cavity to a simple one, and secure the ends by such ways and means as intelligence would dictate—and that will be further explained between this and the end of the paper.

The kind of instruments to be used in the filling of teeth, are, as a usual line of practice, the choice of the operator. We all invent and we all couple others' ideas with our own, and often secure, by o doing, better results.

An instrument that at one time would be efficient, at another would be valueless,—and yet this would apply to those who pursue a certain method in both the preparation of the cavity and the materials used.

Instruments for filling teeth are multiplied in variety as to forms of packing surfaces, angles, and the curves of the shafts to which the points are attached. Some are blunt, with broad surfaces; some are reduced to a single sharp point (needle-like) or knife-edge; others have numerous points or edges; while others are medium in size, and points, and edges, and those of smooth, flat, oval and ovoid surfaces.

That good results are obtained with all, is true. That with some a greater degree of uniformity and success can be obtained, is also true. I am converted to the fact that the principle of welding is proved most conclusively by the use of oval and ovoid surface-packers, and is not so perfectly done with any others. Annihilation of space between the layers of gold means welding; and while we require this, we also require adaptation of the gold to the tooth. Softness *alone* will not secure it. Such pressure must be applied as will *best* secure it,—and I shall claim that the smooth, oval, or ovoid surface-packers will accomplish all that could be desired in point of perfection. They secure lateral pressure, and a packing-point always in the line of the instrument; and the *sliding*, which *does* occur, is a decided agency, if under the control of a skillful hand, in manipulation. With the above-named instruments the number can be reduced largely. With what I would call a proper-shaped cavity, I am able to select five packers,* and one retaining-instrument with three teeth, triangle-shape of surface, which I hold in my left hand for the purpose of securing the first piece or pieces of gold until I can secure the base of the filling.

I feel safe in saying that I can pack the filling ready for burring down, or finishing, in *any* case that may present itself in practice,—where gold would be used.

Serrated points are not the *necessity* any longer. Those who can produce good results with them can, with the same skill, secure far better with the ones I have referred to.

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* The instruments were exhibited.

In the choice of materials to be used, the value of a proper selection will also be apparent to the educated practitioner. We must bear in mind that when we incorporate a filling with the tooth, we have only produced a mechanical union; and yet it can be made a tolerant one with the means at our disposal—sometimes by a non-conducting material, at other times by the opposite, and at others by the corporating of both. In the pulpless tooth the vital forces are so much reduced, that a greater degree of indifference is manifested towards foreign substances. Gold, platinum, tin foil, and cement plombe, are, according to my present light (gathered by observation from the practice of others, and experience in my own hands), the most reliable materials with which to secure the ends desired in filling teeth (as presented in this paper), and the choice of these must be with the one who assumes the responsibility of dispensing *real service* to the human family. Then, if we do not walk in the *individual* light we have, we are *self-condemned.*

## THE CELLULOID BASE.

BY DR. DE MONTREVILLE, ST. PAUL, MINN.

By those who, like myself, have been during the last decade of years driven, as it were, to furnish some substitute for gold to our patients, and—*noblesse oblige*—have been forced almost to use vulcanite as a base, to enable us to compete with others of the profession, and supply our patients with something that came within their means pecuniarily, the advent of a substance containing the very embodiment of the essentials we need in a cheap base has been hailed with great delight, and with a sincere hope that it may succeed.

Amid the vegetable fibrins we find the cellular tissue, or cellulose or celluloid, "insoluble in water, alcohol, ether, or diluted acids," "distinguished by its great resistance to chemical agents," "and, moreover, a singularly pure substance," says Chemistry; having in itself, apparently, the very qualities most adapted to our wants as a cheap material. Under the spur of a business enterprise, and guided by mechanical precedent, we are taught its manipulation into the cheap and yet beautiful specimens of dental handicraft by which the practitioner is enabled to respond to the daily calls for work which formerly was only within the reach of the wealthy. Practically, the new base will become in the near future all we may want for the cheaper kinds of work; and when the experimentalists have brought it to the perfection to which it is destined, we think, to arrive, we are persuaded it will supplant most other styles of work. We have watched it from its inception, as a luckless, hornlike deposit amid the *dêbris* of a disused collodion jar, and its transmigration through various names, upward steadily, always improved, and always capable of further improvement, until it has become more and more purified and manageable, until it has now become something which we can conscientiously recommend for purity and usefulness. We have heard fears expressed of it,—doubts and misgivings. We confess we have had them ourselves, and our duty to our own interests has compelled us to ransack the chemical knowledge of our most learned *savans* for exhaustive inquiries into the nature, substance, and constituents of the new material. All reports have been favorable thus far; and now, after several months of trial, and almost microscopic watchfulness for any imperfections, we must say that of all the cheap bases in use we immeasurably prefer the celluloid. Its color, so very like the natural gum, "like rose-leaves on ivory crushed," enables us to use it in temporary cases, where vulcanite would be entirely inadmissible; its manipulation is easy, much more so than its mahogany-colored archetype. I may practically say, in summing up, that in thirty-four cases now in use among those who have honored me with their patronage, no complaint has been heard as yet.

The manipulation does not as yet seem to be fully understood by the profession at large; and we have come to the conclusion that the failures with the celluloid are due to the method of manipulation, and not to the material *per se.* Laboratory practice has taught us that the uncolored plates are best moulded at about 250° to 260° F., and in oil; that the pink plates work most satisfactorily at 305° to 310° F. in pure olive oil; that scraping with a smooth edge, emery-papering, and cotton-wheel buffing give the best finish; that letting it remain in the oil-bath for about five minutes after the flask is closed seems to toughen the material very much; that a bevel edge of the gum teeth seems to give a sort of socket rim; that the deepening of the lines of the rugæ may be permitted with manifest benefit, as the palatine surface finishes up quite smooth when the plate leaves the plaster mould; that the higher the polish the more the surface resembles the tint and sheen of a marine shell, and has the least odor of camphor. And here I may be permitted to hazard a conjecture that camphor now seems to be used in the primal manufacture of the plates, as the stiffening, the vital principle (if I may so express it), of the cellulose tissue, as tannin and its preservative principle is similarly used in other tissues, or as shellac is mechanically used in preparing felted bodies, or gluten as a sizing for some textile fabrics; and we have no doubt but that, the substance of cellular tissue or fibrin once recognized as the principal governing material of a base, the improvements daily making under the aggressive march of scientific research will give a large choice of articles as a *quasi-mordant* with which to harden and color the newly-invented base. Upon the whole, we are very much pleased with the celluloid, and welcome it among the fixed facts of the profession, and unhesitatingly recommend it even in its present state as decidedly an acquisition, and quite a relief from the glaring faults, shortcomings, and apprehended dangers of the anathematized vulcanite.

In addition to the above, I may mention that, seeing Dr. Eames's (of St. Louis) list of unsatisfactory cases, as published in the DENTAL COSMOS for March of the present year, I addressed him a note, asking him if "any of the work he had reference to had been made lately." His reply was, "*I have experimented very little with the celluloid since January,* 1872;" and hence I concluded that he was experimenting about one year ago with imperfectly-matured plates, and think, in simple justice, that the failures he met with then ought not to have their objective-point to the prejudice of the material as improved at present.

# THIRD DENTITION.

BY BERNARD HESS, NEW YORK.

*Case* 1.—Rev. Dr. S., aged sixty, several years ago had *all* his upper teeth extracted, and an upper denture inserted. After wearing the artificial teeth about a year, the gums on the left side began to get inflamed and swollen. Having consulted several physicians and dentists without benefit, he called on me. No fistulous opening being present, I made an artificial one with a sharp excavator, and, to my surprise, felt the outlines of a tooth. I dissected the gum sufficiently to apply the forceps, and extracted a sound, well-shaped eye tooth.

I considered this, then, to be a clear, authentic case of "third dentition."

*Case* 2.—Miss O., twenty-four years old, had a very bad upper set of teeth, which she concluded to have extracted. I performed the operation, and, after finishing, as I thought, I asked when she had lost the right upper lateral. She said that she was certain that she never had a tooth extracted before; upon which information I made a closer examination, and found a sound lateral imbedded deep under the gum, and extracted it.

Now, this would have been another case of "third dentition," if a careless operator left this lateral to be discovered by another dentist a few years hence; and it seems to me that my Case 1, as well as *all* such cases on record, are rather cases of oversight than of "third dentition."

# THE PRESERVATION OF THE TEETH AFTER CARIES HAS PENETRATED TO THE PULP CAVITY.

BY B. OSCAR DOYLE, D.D.S., LOUISVILLE, KY.

PREVIOUS to the last few years, the general practice was to remove the nerve, and completely obliterate the canal, by the introduction of gold; the theory being that, there being no space for the retention of noxious gases, the tooth would remain free from disease, and be useful later, after "capping" had been discarded. We find devoted admirers of the "reproduction of dentine" over an exposed pulp by a "proper application" of the ox. chlo. of zinc, and the journals teem with enthusiastic communications stating "how they do it," and seemingly pronouncing anathemas on their less fortunate brothers who fail by their theory and have recourse to arsenical preparations (if death of the pulp has not already supervened from the application of the new remedy). Thus we are constantly drifting; the pet theories and practices of to-day are discarded on the morrow, and new ones adopted, to be alike discarded for something better(?). With us, success has crowned our efforts, with a *very few exceptions*, by the following method: When it is deemed necessary to save a tooth in which the nerve is partially or wholly exposed, and inflammatory symptoms present, guided by the light of past experience, the first step, after a sufficiency of the decayed portion had been removed, would be to allay acute pain; then apply a small portion of the agent to be used in devitalizing the nerve (we use pure arsenious acid, finely pulverized, mixed with four times its bulk of finely powdered willow-charcoal, applied on a pledget of cotton previously moistened with carbolic acid); the cavity is then well sealed. After twenty-four hours have intervened the application is removed, and the cavity opened until *all the fangs* can be reached. (By the use of "the Morrison Engine" this part of the operation can be performed in a very few minutes, and with perfect satisfaction.) By the use of good nerve-extractors, and *considerable perseverance*, the nerve can ordinarily be entirely removed. Should there be the slightest periosteal inflammation, the cavity is dressed with carbolic acid, and local applications of tr. iodine and aconite, āā ss., are made to the gum, immediately over apex of fang, to stimulate the absorbents. When all inflammatory symptoms have subsided we proceed to fill the fangs. And in this we discard our early teachings, believing that nature should be imitated as much as possible, and that gold, or any metal, while extremely difficult to manipulate successfully in the fangs, is deleterious, because of its conducting thermal changes where nature never intended they should go; and also discarding the preparations of oxychloride of zinc, on account of its powerful escharotic properties if accidentally forced beyond the foramen; and cotton, because we have had many failures with it (probably through its absorbent properties).

Believing, as before intimated, that the filling in the fangs should be a perfect non-conductor, we use pure gutta-percha, known as "artificial dentine," "Hill's stopping," etc. This is warmed, and made into rolls somewhat smaller than the cavity, and near its shape; the cavity is wiped out with cotton wound around a broach, and *absolute* dryness induced by use of the "hot-air syringe." (This we consider of paramount importance.) A small piece of the gutta-percha filling is then taken up and introduced into the cavity, care being taken not to force through the apex. In this way, the nerve and pulp cavities can be thoroughly filled, and if the tooth is in proper condition at the time it will remain free from disease, and do good service.

Our practice of this method has extended over several years, and during that time has been applied to every case of fang filling, without regard to the kind of filling to be used in the crown cavity.

# PROCEEDINGS OF DENTAL SOCIETIES.

## NEW YORK ODONTOLOGICAL SOCIETY.

May 21st.—The committee appointed to examine the merits of Dr. Mack's improvements for setting screws, reported that the invention has two applications,—the insertion of screws for retaining fillings, and the retention of pivot teeth.

The instruments being accurate, the screws are set with precision, and can be made firm. By their use contour fillings can be greatly strengthened. As there is less necessity for cutting grooves, considerable dentine can be saved by their use. But little experiment had been made with them in setting pivot teeth.

Dr. Kingsley. I have here the cast of a case of fracture of the inferior, and entire loss of the superior, maxillæ on the right side, caused, some sixty days since, by the accidental discharge of a gun. The malar, and a portion of the palate bone, gone. The teeth on the opposite side are disarticulated so that the patient (a gentleman thirty years of age) has no use of them. My first operation will be to break up the false union that has taken place during the long time since the accident occurred; then, by dissecting up flaps from the adjoining parts and giving the cheek an artificial support, I shall hope, in a measure, to restore the lost parts.

Dr. Shepard. I have to report what may be new to some,—the filling of frail teeth with os-artificiel in connection with gold. In incisors and bicuspids, I fill the roots and across the cervical wall with gold, and then the rest of the cavity with os-artificiel. In this manner the teeth are protected at the point most destructive to oxychloride fillings, and the rest of the filling can be easily examined, and renewed from time to time, if necessary. I have some cases of this kind that have stood for three or four years.

Dr. Robert Arthur, being received with applause, said :

Gentlemen,—I cannot but feel highly gratified and flattered at this cordial reception. I am here this evening at the invitation of the Odontological Society of New York, to make some further statements than appear in my recent publication, in regard to the method of treating the teeth in reference to dental caries, therein explained.

Innovators, if their views possess merit, have less to fear from opposition than from indifference. I certainly cannot complain of neglect, in view of the lively and widely-extended interest displayed in the system I have proposed. While I have confidently believed that in time this system must be generally adopted, I was not prepared for its immediate acceptance to so great an extent as I have evidence that it has been. Instead of opposition, I have been surprised with the reception it has met, and really somewhat overwhelmed with the expressions of approval I have heard during the few hours I have been in New York.

I shall, of course, not occupy your time this evening in going over the general argument I have attempted in regard to the treatment and prevention of decay. This I have already done very elaborately, and you are familiar with the course of reasoning I have pursued. I shall confine myself, at the present time, to a brief comparison of the method I propose with that now generally relied upon.

As is well understood, the great remedy for dental caries is that of filling the carious cavities with gold. You are all acquainted with the remarkable improvements which have, within the past fifteen years, been made in gold prepared for dental purposes, and in the instruments and appliances of all kinds required for the operation in question. Results not dreamed of twenty years ago are now attainable, and the number of "good operators," as compared with the aggregate of those engaged in the practice of dentistry, has greatly increased.

But it must be admitted that while gold is by far the best material now known for the purpose, it has serious defects. The color of gold, differing so widely from the natural hue of the teeth, leads to disfiguration when it is employed at positions where it becomes visible. It is, under certain circumstances, very difficult of manipulation, and requires a high order of manual skill to produce beneficial results. Its costliness, and the great length of time required for the performance with it of difficult operations, so frequently required, place the preservation of the teeth by this means out of the reach of people of moderate means.

This latter consideration is one of great importance, and one which we have no right to ignore. It is incumbent upon every true man engaged in the practice of a profession involving the health and comfort of the community, as is the case in an eminent degree with ours, to do all in his power, consistently with his just demand for full compensation for his services, to bring its benefits within the reach of as large a number of the community as possible.

I need not inform you that great and persistent efforts have been made to discover a substitute for gold for dental operations, and that a variety of plastic substances or compounds, some of them more nearly resembling the natural hue of the teeth, have been invented. But no one will pretend to say that they have begun to displace gold in the hands of the best practitioners.

But it seems to have been overlooked that the solution of the problem of the treatment of dental caries, when it can be resorted to at a sufficiently early age, lies in another direction. The dental profession seems to have lost sight of the numerous examples of the successful treatment of incipient dental caries of the proximate surfaces of the teeth furnished by the practice of Hayden, Parmly, and others, by its removal with the file. It seems not to have occurred to the most earnest men that if incipient caries could be arrested by this plan, it might by the same means be prevented from occurring in cases where it was otherwise inevitable. This is all that I propose. This is the solution of the problem which I have offered; and I propose now to call your attention to some of the results of this method of practice, and to compare them with those usually relied upon. I will not take cases of other practitioners, in order to show their failures in comparison with the success of my own treatment; but, for illustration, I will take two cases which I have myself treated by the two methods under consideration. Whatever in the way of failure of good results may appear, the responsibility must rest entirely with myself.

[Dr. A. here exhibited enlarged diagrams, showing all the operations in the cases presented for illustration.]

It has been objected to the practice I propose, that while it might be applicable to well-formed teeth in which caries progresses slowly, it would fail when applied to frail teeth. It has been said that the success of the older practitioners in arresting caries by the use of the file was due to the better quality of the teeth in their day,—that the teeth have deteriorated so much at the present time that it would fail if attempted.

The cases I have selected for illustration will show the fallacy of this assumption. The two individuals are members of the same family, a sister and brother. Their physical characteristics, and the structure of their teeth, are closely similar. These cases, it must be admitted, furnish a test of the fairest description, and afford ground for a just comparison of the merits of both methods of practice.

The treatment of these cases was commenced in 1862. The girl was then fifteen years of age; the boy eight. They are under my professional care at the present time.

In the case of the young lady, caries had attacked the proximate surfaces of all the teeth except the lower incisors, and had progressed, with a small number of exceptions, so far as to render filling necessary.

Where the caries was in its incipient stage it was removed, and the affected teeth permanently separated. The proximate fillings amounted in number to forty-seven. Incipient caries was removed from six surfaces. The operations in this case, when fillings were required, were extremely painful, as the dentine was highly sensitive. Notwithstanding the care with which the fillings were inserted, it became necessary to renew some of them several times, in consequence of a recurrence of caries at some point about the margins of the fillings. There was no recurrence of caries in a single instance where the teeth were treated for incipient caries and permanently separated.

In the case of the boy, the course of treatment I have proposed was rigidly carried out. He is now eighteen years of age. A recent examination shows thirty-one proximate surfaces treated as I have advised. In six, caries recurred and fillings were required. These were points at which caries had occurred, and was not, probably, entirely removed. With the exception of the fillings, the operations were painless.

Let us now consider the prominent features of these cases. The teeth of two individuals were equally liable to decay. In the case of the sister, caries had attacked every proximate surface, with the exceptions noted, before she had reached the age of fifteen.

What reason was there to suppose, as the conditions were nearly identical, that the teeth of the brother would not suffer in the same manner? In his case the occurrence of caries was prevented in the manner I have proposed, except in a small number of instances. These were the only teeth treated as described in which there was a recurrence of caries. In the case of the sister, although I operated with all the care I was capable of exercising, I found it necessary to refill some of the bicuspid and molar teeth several times, in consequence of the recurrence of caries. But the six surfaces from which incipient caries had been removed at least eight years ago still remain unchanged. If this case alone were taken as a test, who could dispute the advantages of the treatment employed?

Now, these are not special cases selected for this occasion I had indeed prepared diagrams of others, but they were made where I could not direct the artist, and do not well represent what I wish to show. But it is not important. The cases to which I have called attention represent the results of my practice for the past ten years. During this period I have pursued this course with all children, with rare exceptions (for the cases in which there is exemption from caries of all the proximate surfaces, except those of the lower front teeth, are at the present day very rare), who have come under my professional care. I now see them frequently as young men and women, with their teeth in such condition as to require no further treatment of consequence, at an age when for most individuals commence the series of painful operations which are to be continued from year to year during a lifetime, and which, in the hands of many dentists, prove frequently unsuccessful.

Now, in the name of humanity, what man here present would subject his children—and his patients occupy the same relation to him professionally—to the agonizing treatment required in the first case, when the more effective and painless treatment pursued in the second could be applied?

I beg to say, gentlemen, that I have not rashly come to my present conclusions. I have given my earnest attention to this subject for more than twenty years. So cautiously have I proceeded, in view of the adverse opinions and prejudices of my professional brethren, that with my convictions of what I believed to be correct practice, it seems to me like stupidity, looking back upon my past career, that I did not adopt the practice fully long ago.

I am aware that it has been proposed to prevent caries by great personal care. While I am satisfied that this might, in some cases, be accomplished, it has proved unsuccessful in my own hands. I should be glad to resort invariably to this plan if I could make it available.

In attempting this practice, it is important that, if possible, it should be strictly preventive. If caries be permitted to progress so far as to attack the dentine, it is exceedingly difficult to remove it perfectly, and most of the cases of failure in my own hands, and in those of others, have been where this has occurred. Every dentist who deserves the name should be able to determine when caries of the proximate surfaces of the bicuspids and molar teeth is inevitable unless prevented.

The complaint of inconvenience in the act of mastication is only in those cases where caries has been allowed to progress so far as to require the separation to be wider than is necessary, if the treatment is conducted in the manner I have advised. I have never heard complaint from this cause, as a means of prevention of caries, in carrying out my method.

The best method of making these separations is a matter that will soon be determined in a better manner, I presume, than I have explained, or can explain at the present time. The separations, in the cases referred to, were made with the file. I am well aware of the reasonable objections to the employment of this instrument. I have suffered from this cause, and nothing but a severe sense of duty could have sustained me in my determination to carry inflexibly into practice the system I knew to be best for those who intrusted themselves and their children to my care. With the greater part of my profession in my own vicinity misunderstanding, and arrayed against, the practice, it came to be generally understood that I proposed the indiscriminate filing apart of all the teeth of all the children who were so unfortunate as to fall into my hands.

But for some time past I have abandoned the use of the file, and employed the hard chisels described in my late work. With them the object can be well effected. The process, I must admit, is tedious and laborious as applied to the molar teeth, but is much less objectionable to the patients, and for this reason is greatly preferable to the file.

The introduction of Morrison's Engine and other appliances of this description, however, opens a new field for improvement in this way, and I have no question that means will be employed which will greatly facilitate the operation of separating the teeth. I expected to be able to exhibit to you specimens of instruments which I have recently devised for the purpose, and which I am sure will do much toward removing difficulties now attending this treatment; but I have failed to receive them. I have no question that still other improvements will be made, which will supersede any means now relied upon. With the present facilities, the cone bur drills may be used with excellent effect in connection with the chisels described for separating the molars, and what are known as "fissure burs," the bicuspid and incisor and also the molar teeth.

It has now been some six years since I began to bring this subject to the attention of the dental profession. I have challenged discussion, and hold myself ready at all times to defend my position. During this time I have not met with a single objection of any force or weight to the practice proposed. But as it is growing late, and other subjects of importance will no doubt be brought to your attention, I will not detain you longer.

Dr. J. S. Latimer. I would like to ask Dr. Jack if he indorses the principles advocated by Dr. Arthur?

Dr. Jack. When first announced, I, with many others, failed to apprehend the method Dr. Arthur has been for some time pursuing. I confess, to my shame, I did not clearly understand him. Seeing in my mind's eye the disfigurement by what appeared as unnecessary cutting, and knowing the consequences of parallel separations, I feared the results. As I now understand Dr. Arthur, he does not greatly increase the space on the buccal and labial sides, but he very largely increases the separation on the lingual side, thereby avoiding disfigurement, and producing a self-cleansing surface. As soon as I clearly apprehended this method of treatment, I commenced to carry it out, and the result has been corroborative of all that Dr. Arthur claims.

Teeth will usually be divided into two classes: those that touch at a small part near the crown surface, and are narrow at the cervical portion; and those that are parallel-sided, and touch each other over the greater part of the proximate surfaces. These two classes require different treatment.

In making separations, the main principle to be observed is to so cut the teeth as to leave them in contact at a minimum point,—the object being to remove, as far as possible, one of the predisposing causes of caries, namely, contact.

My own experience has taught me that caries is more to be feared from the retention, from day to day, or longer, of amylaceous matter combined with what I may be allowed to call devitalized and decaying mucus; by the catalytic decomposition of these substances we probably have more reason to fear the destruction of the teeth than we have from any derangement of the salivary or mucous secretions. The result of proper spaces is that each effort of mastication clears the space,—that no long-continued retention can happen. I have had failures, but believe they can be traced back to imperfectly-formed separations, to insufficient spacing, or to incomplete removal of all the disorganized dentine. It will frequently be found that after having removed the superficial caries, if the rubber dam is applied, and the surfaces are dried, there will frequently be seen an opacity, indicating that integrity of substance has not been reached. The same means will frequently reveal the commencement of decay where least suspected.

I have had trouble from molars turning on their axes, but only in exceptional cases. The method of separating inferior molars and bicuspids which I have pursued has been somewhat different from Dr. Arthur's. With bent chisels, I cut directly from the lingual side to the centre of the proximate surfaces, and then cut in the same manner to the same point from the buccal side, but not to the same degree. I also frequently make these separations with V-shaped files; holding the file at such an inclination to the crown surface that while the edge has scarcely entered at the buccal part of the space, it has passed down to the gum at the lingual part. The use of the file in this way I do not find to occasion much discomfort to my patients. The space is rounded, and so formed as to leave a knuckle on the buccal side, near the gum.

Dr. Fitch. Is that method applicable to all teeth?

Dr. Jack. I modify my method in accordance with the case. If the teeth are soft, frail, and the tendency to caries excessive, I should separate more freely, and in both directions.

Dr. Abbott. In a crowded condition, would you retain all the teeth, or would you extract?

Dr. Jack. If the molars had exposed pulps, the teeth being very frail, and the patient not over twelve, I would extract the first molars; but in this case little is to be expected in the way of correction of irregularities, if the bicuspids are in their places; in my experience they have not moved backward. Such movement, it appears to me, is not in accordance with the law of evolution of the teeth: closures of spaces taking place usually by the advancement of the teeth posterior to the opening, and not reversely.

Dr. Hitchcock. If we have a lower molar badly diseased, the supposition is that at some time it must come out; and the question is, when is the proper time? If the lower first molars are extracted, and the upper molars are defective, I advise their extraction also. Perhaps I am making a strong statement, but it seems to me, if four teeth are removed, we shall have left an almost perfect jaw.

Dr. Shepard. The six-year molar point in Dr. Arthur's book is the only one I object to. I have here a model of the mouth of a *young* lady of thirty-five. Four molars have been removed. There is a little tipping of the second molars,—very slight,—and a failure of the teeth to touch, leaving the mouth almost perfect. There is only one filling on the proximate surfaces,—many on the grinding.

The bicuspids have gone back the width of a tooth, and the molars have come forward. I believe there is no better method by which to save pain and to save the teeth.

Dr. Riggs. For twenty years I have studied the treatment of children's teeth, and my practice is to extract the six-year molars when the bicuspids appear. Result: the second bicuspids will fall back; also the first bicuspids; also the canines. I state this from ample observation and experience.

Dr. Codman. I apprehend that the trouble in these cases lies further back than has been shown. In the casts shown by Dr. Shepard, I will prophesy that in less than six years he will be ashamed of the teeth as they will be then. You must develop your teeth as you go along. The articulation has everything to do with the position the teeth assume.

S. G. Perry, *Sec. pro tem.*

## BROOKLYN DENTAL SOCIETY—REPORT OF DISCUSSIONS.

### Dental Histology.

Dr. Atkinson. The word histology is derived from the Greek words ἱστός, *histos*, a web, and λόγος, *logos*, a discourse, and means a discourse about webs. Web-spinning and web-weaving involve the preparation of the elements of tissues and the putting them in place to form organs. The history of this process is true histology. A full knowledge of the laws and forces governing and displayed in the up-building of tissues, and their aggregations, would enable the observer to delineate the mode of production and function, special and general, of any specimen brought to him for examination. A wonderful display of this regnancy of law is to be witnessed in cocoons; these discover to the educated mind the generic and specific characters of the weavers of these wondrous webs. Dumb-bell cocoons, cylindrical cocoons, oval and ovoid cocoons, are constantly the proper products of the varieties of workers to which they respectively belong, so that the silk culturist is enabled to select his stock with certainty by sight of the cocoons. Experts are said to be able to define not only species and variety, but also sex, of the cocoons, upon special inspection.

It will be apparent that observation of the *career* of the silk-worm was the means of learning this lesson; but we have no such obvious example in the career of tooth elements to enable us to discover so exactly the inception, career, and disappearance of the elements and bodies that construct the teeth. Not until within a very late period was there any just apprehension of the existence or character of the tissue weavers of the tooth elements—the cells—that construct the pulp, dentine, enamel, and cement, which are properly dental tissues, and are the legitimate bodies for our consideration on this occasion. The microscope has made it possible for us to see these minute bodies that have been denominated cells. It also reveals to sight the parts of these minute structures in clearest detail, as body, wall, nucleus, nucleolus, granule, etc., by which we are able to differentiate one portion of a cell from another, and also to see the difference between the cells that produce the dentine, enamel, and cement, and also to learn their relations in normal and abnormal presentment. To the microscope, then, we must appeal for the settlement of all questions that arise as to health or disease in these minute bodies and structures. Here, as in the other departments of minute (and coarse) anatomy, we must rely more upon examinations of the actual specimens than upon the writings or opinions of other observers, if we wish to be at all certain of our principles or the practice based thereon. This will suggest the high propriety of this society taking up and thoroughly investigating the subject of "Dental Histology." If we are unable to settle a single dispute, the turning of our minds in this direction will at least cause us to learn what we do not already know in some degree, and also help to clear the way for us to propound intelligible interrogatories to each other, and thus stimulate investigation and personal examination into the already broken ground for research.

Dental histology springs so many questions upon us that it seems a great undertaking to consider them; even the least of which forces us to consider the origin of each body and process set before us.

This present effort of mine was sprung by the President putting my name down as one of the speakers upon the subject of the evening. Whatever may come of our endeavor is attributable at least to this appointment as an exciting cause. Will it not be profitable for us to inquire whether the demand for some special exercise of our powers such as this be not of a piece with each and every performance of body and process throughout the whole domain of *work* and *worker?* All known bodies originate from elemental constituents so unlike the perfected body as to utterly preclude us from knowing the adult by an examination of the germ, or the germ from the adult form of body before us. If, then, we can only deduce *function* by observing bodies at *work*, and know of no body but has been called into being by the demand of work needed to be done, is it not clear that *function* is before *body* and the limit of its plan and power to do that for which it was destined?

The builders of tissues are called *cells;* the elements of cells, *granules;* the elements of granules, *molecules;* and the elements of molecules, *atoms*. This carries us back as far as a mere physical survey is capable of conducting us; and we are as helpless here as at any stage of the progress, from a complete tooth down the ladder of construction to this the starting-point of all an-atom-y of all possibility of physical body. If, then, we would know the true history (histology) of the final elements of dental tissues, it is manifest that we must give attention to these profound studies, and become, by familiarity therewith, truly erudite histologists of "*dental tissues*."

What does all this involve? To begin: Chemistry is demanded, which, when fully apprehended, suggests and prophesies all the rest of natural history, including *biology* and *psychology*. Chemistry supplies us with the materials; biology gives them form and arrangement; psychology enables us to apprehend and comprehend them in becoming factors of apparent functions other than those of atomic or chemical form.

Elements of tissues may be divided into classes, *i.e.*, simple and compound, unitary and multiple, ultimate or absolute, and proximate.

Coherence and adherence owe their presence to the affinities that *produce* them.

A display of degrees of affinities has been observed in what has been called "*saturation*," or satisfaction of affinities, and "*non-saturation*," or partial satisfaction of affinities. The bodies produced by these diverse methods are diverse in many characters; the principle of which is seen in the stability of the bodies resulting from saturation, and the instability of those resulting from non-saturation of the producing currents. The bodies of the mineral kingdom are the most stable bodies of which we have any knowledge; those of the vegetable kingdom are less stable, and those of the animal kingdom least stable of all. The length of the stay of elements together without modification, is a key to the *grade* of body they form,—that is, fully saturated bodies of the binary group are the longest lived, and the lowest in endowment of presence and power. These have no outside affinities until their elements are dissociated by violence from without. The next group in order is displayed in non-saturated bodies,—that is to say: two elements in union, one element of which has one bond or power of affinity, and the other possessing two measures or bonds of affinity, only one of which is engaged to saturate that of number one, thus leaving one bond still free to seek or accept its saturating affinity whenever presented. This last is exemplified in the affinities of hydrogen and oxygen, when forming water, $H — O — H$, hydrogen oxide: or $H — O — O — H$, hydrogen peroxide, or oxygenated water. There are sixty-three kinds of atoms now known, thirteen of which conspire to form the human body; six enter into the structure of tooth-tissue proper, viz., oxygen, hydrogen, carbon, nitrogen, lime, and phosphorus.

Atoms cannot be divided, but they can be aggregated; and the methods of aggregation present us with elements and proximate elements, with which we must deal if we wish to understand the constructions and destructions of the tissues, with which we are now called upon to interest ourselves. We must possess in some degree this knowledge, before we can hopefully undertake to arrest or restore the destructive metamorphosis that constitutes that which we call decay.

All metamorphosis of tissue is *decay proper* of some form of body, and therefore not to be deprecated in this sense. *Premature* decay is all that the most fastidious student of a pure physiology could desire to prevent, arrest, or restore. The object of our present efforts to stimulate to the study of "Dental Histology" can only be gained by observing the influence of the sun upon disintegrated mineral substance, combining and raising into secretory or cell tissue, which, under the continuance of the same influx, produces the various forms of vegetable growths, from the merest spore and fungus forms, that die of old age by the million in an hour, to the most enduring giant of the forest that flourishes for thousands of years, and then only dies by accident, and not by the exhaustion of the production of the typical cells, whose duty it is to ever stand as the *high-priest*, to marry the saturable bonds of the cells to each other, producing mineral again (of modified form), on the one hand, and the non-saturated bonds to the pabulum, in sap, to form new secretory cells to perpetuate the cambium between bark and wood, on the other.

Certain rhythmical undulations, or movements of sun-influence, are concerned in all the synthetical combinings of simple elements into proximate elements; and these into tissues, organs, and systems.

Any condition that disturbs the rhythm of these movements of sun-presence, arrests, modifies, or reverses the order of combination of elements. In case of arrest, the composition is prevented for a time, to be resumed again without material detriment to the ultimate product. In cases of modification, imperfect products will follow, in degrees of poverty of endowment according with the modificatory force. In cases of reversal of sun-presence, we are presented with disintegratory motions, in the inverse order of the rhythmical synthesis.

The great generalization of the principles and affections of the elements of tissues that an observation brings to plainest apprehension, is, that *association*, once enjoyed among the constituents, absolute or proximate, is ever dear to, and sought to be maintained by, them. We have already instanced the *permanence* of the associations of binary elements and the whole range of saturated constituencies of bodies. Thus do we trace the primal impulse of nature from the almost immutable enamel up through more mutable, because more complicate, forms of matter, solid, liquid, gaseous, and protonaceous, till it reaches the summit of the scale in the human brain, producing there the divinest and most evanescent association known to the elements of tissues, as such ; and thus we are learning the lesson of mutual dependence, support, and love, that reconciles us to the cancellation of the puerile bonds once held so dear. And we gladly accept the new surprises of influx of sun-influences, that we are now convinced will safely conduct to the highest destiny! Am I not then justified in the assertion of the mutual dependence of all departments of *being*, of *science*, and of *method* of presentment of these, in the associative and dissociative activities in matter and mind that acquaint us therewith, and enable us to perceive the grand synthesis by the detailed analysis of presence and power, whose mutations constitute not only our bodies and minds, with their physical and psychical gyres, but our individual and social relations of affection to every atom, molecule, organ, system, and cycle of systems, that constitute the blessed Father's house of many mansions, which we denominate the Universe?

Mr. President and gentlemen, I trust you now see that we have before us no puerile or insignificant work, if we attempt to understand the *creation* or *becoming* of tissues, and their aggregations into organs and systems. A complete apprehension of the production and use of a human tooth involves, in its degree, the laws and processes by which the universe itself is produced and maintained; and although all the past stages of apprehension and scientific attainment are necessary and indispensable, yet I wish to warn you against accepting them as ultimate truth; for all the processes of biology and psychology involve chemistry and physics, natural and (what is called) voluntary modes of association and dissociation of primates in physics and consciousness, that are themselves progressive, as we become able to apprehend them, by increased facilities of discovery and invention, by which the processes of understanding are shortened and rectified to such a degree as to necessitate the discarding or rewriting of the text-books. So painfully apparent is this fact, that we may well be discouraged if we expect to be fully apprehended and understood in such efforts as these, to compress into short and aphoristic statements the scientific processes, natural processes, and functional processes, of the bodies with which we have to deal.

The teacher is constantly under the necessity of making many statements, or parts of statements, that must remain for future comprehension in demonstrative degree, hoping for an understanding of a part only of that that is attempted to be demonstrated. This arises more from the nature of things in their progressive necessities, and the fallacy of former teachings, than from our inability to understand alike the *complexity* and *simplicity* of the analysis and synthesis of bodies and processes, that appear as *simple* to the unaided sight, but which are discovered to be *composite* the moment the factors of function are revealed. The *plan* of the universe must have *preceded* its production. No naturalist can be an atheist, for he is ever in the presence of potential or actual functions, that always operate by specific modes, denominated laws.

Now, I trust you see whether or not we have anything to waken our enthusiasm, to engage the utmost mental tension, and absorb our affections, thus making the study of dentistry dear to our hearts. No one desires to be deceived, for he feels that he is entitled by birthright to the truth, and to come to the full fruition of typical endowment in body, mind, and efficiency. So soon as this spirit shall imbue our hearts, mere money-getting will lose its charm, and the desire to conquer the problems before us will so possess our affections as to make the interest to know the certainty of the propositions we investigate a common passion of a common brotherhood seeking the truth. Then there will be no contention among us, but that noble emulation of who can best work, and who can best agree.

Now, since cells have been revealed as the factors of function, we are delivered from a host of misapprehensions that formerly obstructed the way. That *type* holds undisputed dominion throughout the universe, is made evident to us by the cancellations of the elements of tissues and organs, in alternation, and the retention of functionless organs, as instanced in the embryonal shedding of teeth in the Cetacea and Marsupialia, and the functionless mammary glands in male animals and man. As has been already stated, *function* precedes *factor of function* or organ; *use*, the thing that *operates the use*. The ideal man requires the preparation of his food; this ideal or typical necessity potentially evokes the organ of mastication, that when produced upon this plan comminutes the food. The *method* by which *plan* is wrought out in the human body is tolerably clearly understood, and very fairly detailed, in the late works on "Dental Histology," and may be succinctly stated as follows: The first apparent change is called the granular stage, and constitutes, as its name implies, an accumulation of granules, that in process of time becomes the secondary stage, called the papillary, which merges into the third stage, denominated the follicular.

When the papules that constitute the sides of the follicle have increased sufficiently to unite and close the mouth of the follicle by fusing together, we have the saccular stage, inclosing the germ of the tooth, called the tooth pulp, consisting of two planes of cells, destined to calcification, according to the law of their production, as demanded by the use to which they are assigned. The enamel cells calcify immediately against the first stratum of dentinal cells, and a process of hardening proceeds in the enamel cell, toward the periphery of the pulp, until complete. The dentinal cells calcify toward the centre of the pulp until the series of cells are exhausted by calcification, and then we say the tooth is fully developed, leaving now the pulp in the pulp-chamber. The cementum is produced in like manner by characteristic cells, calcifying from the zonal or interglobular space toward the periphery.

JOHN C. WYMAN, *Reporter.*

## AMERICAN DENTAL ASSOCIATION.

THE American Dental Association will commence its twelfth annual session at Niagara Falls, Tuesday, the 6th day of August, at 10 A.M.

The officers of the association constitute the Committee for Securing Reduced Rates of Fare. They are:

Geo. H. Cushing, M. S. Dean, W. W. Allport, Chicago; C. E. Francis, E. A. Bogue, New York; J. R. Walker, J. S. Knapp, New Orleans; I. A. Salmon, Boston; W. H. Goddard, Louisville; A. B. Robbins, Meadville, Pa.; G. B. McDonneld, Conneautville, Pa.; S. B. Palmer, Syracuse, N. Y.; J. Taft, Cincinnati; and Isaiah Forbes, St. Louis.

G. B. McDonneld, of the Committee of Arrangements, has made arrangements with the proprietors of the Cataract and Spencer Houses, and the International Hotel, for a reduction of the price of board of fifty cents per day to dentists; and has secured a reduction in several other items of expense at the Falls.

To obtain rooms at the hotels at these rates, applicants must notify the proprietors, by letter or otherwise, before the 1st day of August.

The Special Committee appointed "to Prepare a Circular on Popular Education," consists of S. B. Palmer, Syracuse, N. Y.; Homer Judd, St. Louis; and M. S. Dean, Chicago.

Homer Judd, J. Taft, W. H. Atkinson, L. D. Shepard, and William Dutch were appointed a Special Committee on Local Societies, and for conference with the profession.

The Standing Committees are as follows:

*Dental Physiology.*—J. H. McQuillen, M. S. Dean, and C. F. Wheeler.

*Pathology, etc.*—Homer Judd, W. H. Atkinson, and C. Stoddard Smith.

*Histology and Microscopy.*—R. W. Varney, J. Taft, and W. W. Allport.

*Chemistry.*—D. S. Dickerman, H. A. Smith, and J. J. Birge.

*Therapeutics.*—H. L. Sage, J. R. Walker, and W. N. Morrison.

*Op. Dentistry.*—C. E. Francis, E. A. Bogue, and Wm. Dutch.

*Mechanical Dentistry.*—I. A. Salmon, F. Hickman, and J. H. Smith.

*Education.*—A. B. Robbins, C. C. Chittenden, and J. N. Crouse.

*Prize Essays.*—Geo. A. Mills, E. Floyd, and Robert Huey.

*Dental Ætiology.*—W. H. Bronson, L. D. Shepard, and G. R. Thomas.

The Transactions for the year 1871 will not be published before the coming session.

M. S. DEAN, *Secretary.*

CHICAGO, June 10th, 1872.

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The committee appointed to secure reduced rates of fare from New York to Niagara Falls report, with regret, that the Erie and Central, of New York, and the Pennsylvania railroads, have recently bound themselves not to issue excursion tickets for associations or conventions of any sort at reduced rates.

The Erie Road alone reserved the privilege of issuing pleasure tickets for tourists from New York and Philadelphia to Niagara Falls.

Fare from New York to Niagara Falls and return, $14.00.

Fare from Philadelphia to Niagara Falls and return, $17.50.

Fare from Philadelphia to Niagara Falls by way of New York and return, $19.00.

Regular fare from New York to Niagara Falls on either road, $9.35.

"Pleasure tickets" can be procured at 957 Broadway, New York, and 811 Chestnut Street, Philadelphia.

Palace cars and sleeping coaches will be reserved on the Erie Road especially for delegates to the association ($2.00 extra).

C. E. FRANCIS,
33 W. Forty-seventh Street, New York.

## ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

The ninth annual meeting of the society was held on Wednesday, May 1st, 1872, in the Philadelphia Dental College building. The President, Prof. Thos. C. Stellwagen, in the chair.

There are one hundred and five names on the roll of the society, and thirteen names in the hands of the Executive Committee to be reported upon for membership.

*Delegates to the American Dental Association.*—Drs. J. H. McQuillen, Louis Jack, Thos. C. Stellwagen, J. L. Suesserott, E. H. Neall, W. F. Litch, Alonzo Boice, C. J. Essig, C. N. Peirce, and J. L. Eisenbrey.

*Delegates to the State Dental Society.*—Drs. R. L. McClellan, E. T. Darby, Chas. E. Pike, W. C. Head, W. H. Webb, S. P. Shaw, M. L. Long, S. S. Nones, C. M. Curtis, and J. W. Wunderlich.

The election for officers for the ensuing year resulted as follows:

*President.*—Thos. C. Stellwagen.

1*st Vice-President.*—J. L. Eisenbrey.

2*d Vice-President.*—J. McCalla.

*Corresponding Secretary.*—W. F. Litch.

*Recording Secretary.*—Alonzo Boice.

*Treasurer.*—W. H. Trueman.

*Librarian.*—E. H. Neall.

*Curator.*—J. W. Wunderlich.

*Executive Committee.*—J. H. McQuillen, J. L. Eisenbrey, and E. H. Neall.

The President then delivered the annual address.

Alonzo Boice, *Recording Secretary.*

## NEW JERSEY STATE DENTAL SOCIETY.

The third annual meeting of the New Jersey State Dental Society will be held at the United States Hotel, Long Branch, commencing Tuesday, July 9th, at 10 A.M., and holding three days. All interested are invited to attend.

E. F. Hanks, *Secretary.*

## SOUTH CAROLINA STATE DENTAL ASSOCIATION.

The South Carolina State Dental Association will hold its next annual meeting at Columbia, S. C., commencing on Tuesday, July 23d, 1872.

Thomas T. Moore,
*Corresponding Secretary pro tem.*

# EDITORIAL.

## REPORTS OF SOCIETIES.

We have an earnest word to say to secretaries and reporters of the proceedings of dental societies. Not every man is qualified to be a reporter,—able to condense into brief compass the salient points of a discussion, to separate the wheat from the chaff, to give a concise statement of an address, or an abstract of a speech or paper. Not every one, try he ever so hard, can become qualified to do this special service well; but all who accept the position can at least try, and, with an earnest effort, would make a better presentation than without it. The trouble is that, with a very large proportion of the reports which come to hand, it is apparent that no such effort has been made.

In the interest of our readers, therefore, let us say frankly that the report of a meeting which gives only the usual routine business, the calling to order by the chairman, the reading of the minutes, the report of the treasurer, the election of officers, etc., is of no account to any but those immediately concerned. Nor do the profession at large care at whose house or at what hall the meeting was held, who the committee were who escorted the newly-elected president to the chair, nor how many dollars and cents are in the treasury, nor any other of the mere details of the machinery of the organization. Nor are they interested in knowing that an eloquent and instructive address was delivered; that an able paper was read; that a lively discussion ensued, and that Drs. A, B, and C participated in it. But they are interested in knowing what was said, if it was worth the saying; they are concerned in learning any new fact, or even any new theory, in physiology, pathology, therapeutics, or mechanics; they are all desirous of hearing of any new method, material, instrument, or procedure intended and calculated to facilitate operations or to produce more satisfactory results.

Our periodicals are all more or less cumbered with details of meetings which the secretary does well to spread upon his minutes, but which should never be sent to vex the soul of an editor, who, between two fires, is compelled to publish, and so incur the censure of those who subscribe for a journal for what of practical information they can obtain by its perusal; or, on the other hand, displease those who think it strange that the proceedings of *their* society cannot be afforded space in the very journal which several of them have subscribed to and paid for. A simple test will enable any secretary or reporter to decide if he ought to expect the publication of a report, viz., to change the names of the locality and participants, and read it as he would if it were the record of a society in which he had no personal interest. Whoever, thus estimating his report, can feel that the matter is intrinsically interesting and important, may send his record with the conviction that both editor and readers will welcome it. If not, he had better wait until the proceedings of his society are of such a character as to stand this test.

## OBITUARY.

### JOSEPH H. FOSTER, M.D.

At the monthly meeting of the American Academy of Dental Science, held in Boston, May 7th, 1872, the following resolutions were passed:

*Whereas*, It has pleased Divine Providence to remove from this world our brother and beloved friend, Joseph H. Foster, M.D., of New York, it is hereby

*Resolved*, That the American Academy of Dental Science receives the intelligence of the death of one of its most distinguished members with deep regret and heartfelt sorrow.

*Resolved*, That in the death of this estimable man the Academy mourns an honored member, an able teacher, and one whose practice fully sustained the proudest and highest standard of requisitions known to the profession.

*Resolved*, That in the death of Dr. Foster society has lost a useful and honorable citizen, and the social circle a faithful and beloved companion.

*Resolved*, That the proceedings of the Academy of this day, in honor of our late and lamented brother, be entered upon its records, and communicated to the widow of the deceased, with the assurance of deep sympathy in her bereavement. Also, that a copy of these resolutions be forwarded to the Dental Cosmos and to the *American Journal of Dental Science* for publication.

# PERISCOPE.

THE CAUSES OF THE DEPOSITION OF SALIVARY CALCULUS.—With the exception of a few French authors, all the writers of dental literature agree in the well-established fact that the source or origin of salivary calculi is in the saliva.

Taking this for granted, then, viz., that the elements, not necessarily the proximate principles, that are found in tartar (I have used the two terms, tartar and salivary calculus, synonymously) are the components of the insoluble or inorganic portion of the saliva, we will proceed to demonstrate how and why they are precipitated from it. First, let us inquire as to the chemical constitution of the inorganic principle of the saliva.

The fluid not being a fixed secretion, but depending in a great measure upon the physical condition of the system regarding the quantity and quality secreted, it is therefore not at all strange that there should be found such great variations in the analyses that have been made. By comparing several analyses made by the best authorities and averaging them, we find that about five per cent. of the mixed saliva consists of solid matter; now deducting two per cent. for mucus and epithelium, we have three per cent. consisting principally of phosphate of lime, free soda, and the alkaline lactates of lime, soda, and potassa, but observe no *carbonates*, whereas in most cases tartar or salivary calculus is composed of from ten to twenty per cent. of carbonate of lime. Now from whence is this substance derived, it not being found in the saliva? We shall try to account for its presence before we are through.

The above, then, may be considered a fair statement of the chemical constitution of the solid portion of the saliva.

Now let us look for a moment to the chemistry of tartar. We find that the most reliable analyses give from sixty to seventy-five per cent. as strictly inorganic matter, the balance being made up of mucus, fibrin, epithelium, and water. The inorganic portion is that with which we have to deal.

Now comes the main question, and, in fact, the only one that is suggested by the heading of this article, viz.: how is the phosphate of lime precipitated, and what is the origin and cause of deposition of the carbonate of lime that is found to compose a large per cent. of tartar, but which does not exist in the mixed saliva?

As to the first part of the question, we have seen that the phosphate of lime exists *as* phosphate of lime in the saliva, hence it is simply precipitated from that fluid, undergoing no chemical change. The saliva from all the glands,—the parotid, the submaxillary, and sublingual,—while being secreted, and while passing from the mouths of their respective ducts, is normally alkaline, owing to the presence of the alkaline lactates and the free soda; but after it has once become mixed, or even as soon as it becomes exposed to the air, it is immediately changed from an alkaline to a neutral or slightly acid fluid, which can easily be proved by any one with litmus paper. This change may be brought about in two ways: First, the acids resulting from the putrefactive decomposition of particles of food or epithelium, the presence of which is the chief, if not the only cause of dental caries, coming in contact with the saliva, would instantly unite with the free soda, and, if powerful enough, decompose the lactates, setting free lactic acid and uniting with the bases, forming salts. Thus, if hydrochloric acid were present, there would be formed the chlorides of calcium, sodium, and potassium, with the liberation of lactic acid.

Second, the neutrality or acidity might be brought about by the carbonic acid which passes off from the system in large quantities by each exhalation of the air from the lungs. This, coming in contact with every portion of the saliva as soon as it is emptied into the mouth, would tend to transform it immediately to an acid fluid, and particularly would this be the case in the mouth of one who exhaled through this cavity instead of the nostrils.

The saliva now being changed chemically, the conditions favorable to the solution of phosphate of lime of course are not present, and this substance is precipitated as an insoluble powder. It now finds its way between the margin of the gums and necks of the teeth, and is slowly but constantly deposited, first in the interstices in the enamel, and thus gets a firm hold, and then layer upon layer is piled on, until, in time, if nothing interferes, there is formed a huge mass, which becomes the seat of disease and corruption, and even of animal life (infusoria).

Now, concerning the latter part of the question, from whence is the carbonate of lime? We have already seen that the mixed saliva is slightly impregnated with carbonic acid coming from the lungs; this then would act at once upon the lactates of lime, soda, and potassa, forming carbonates of them all, and we would have carbonate of lime, carbonate of soda, and carbonate of potassa.

Now, it is well known by all who have studied chemistry that the carbonates of the alkali metals, such as potassium, iodine, and ammonium, are soluble, while the carbonates of the alkaline earths, such as calcium, strontium, and barium, are insoluble. The carbonate of lime, belonging to this latter class, and therefore insoluble, would be precipitated as a white powder, and, like the phosphate of lime, would lodge in all protected places on the teeth, and with it make up the bulk of tartar as found in the human mouth.

During sleep the conditions are most favorable for its rapid formation; it is then that the parts are in almost perfect rest, hence it remains where deposited; now it is that respiration proceeds through the mouth and the supply of carbonic acid is abundant.

From the foregoing will be seen the importance of preserving the normal alkalinity of the saliva, for upon this property depends its power of retaining in solution the principal ingredient of tartar or salivary calculus.—*Dr. E. C. Chase, in Mo. Dental Journal.*

NITROUS OXIDE GAS.—May we not look upon all anæsthetics as anti-"ozoneizers"?—in other words, they prevent oxidation from taking place by their presence in the blood; as it is well known to scientific men that oxygen, before combining with any other body, must be rendered nascent, which means that it is converted into ozone; for it never oxidizes as simple oxygen, as that is inert under all circumstances.

I may in this place "barely hint" that nervous influence is an "ozoneizer," and I might go still further and hint at the idea that even realition is an ozoneizer, by sending nervous influence into the muscles, ozoneizing the oxygen in the muscles instantaneously, causing instantaneous oxidation and in consequence muscular contraction; hence ozone may be regarded as a chief factor in muscular contractility. If then all the anæsthetics arrest muscular motion and sensation as their chief physiological and therapeutical effects, may they not be regarded as ozoneizers *per se?*

The peculiar effect of nitrous oxide in arresting motion and sensation, and not consciousness entirely, is closely allied to catalepsy, if not identical with it. In that disease there is consciousness and understanding, and a comprehension of what is said to them, and what is going on around them; at the same time there is a total inability to move or offer any resistance if harm is apprehended. During this condition, any surgical operation might be performed without any pain so long as the spell lasted. In this disease all sensorial and mater neural transmission is suspended; at the same time circulation, breathing, and consciousness are retained to a certain extent. Such is the case when the gas is given, and to a certain extent when any other similar agent is used, if not carried too far.—*Dr. S. P. Cutler, in Am. Jour. of Dental Science.*

POISONED BY MERCURY FROM A TOOTH FILLING.—In the January (1872) number of the *Dental Register* I find the above heading, with details of the case, taken from a Nebraska paper. I need not go into all the details of the case again. The facts are these: "John T. Smith died from salivation, caused from having a tooth filled with amalgam. Dr. Sprague attended the case, and afterward called Drs. Davis and Buffon, all of whom agreed that he was suffering from the effects of mercury present in the amalgam used in filling one of his teeth. The filling had salivated the unfortunate man, and as the inside of his mouth, throat, and windpipe swelled, respiration was hindered, and finally it ceased altogether."

Dr. Davis made the *post-mortem* examination, in presence of the coroner and jury of inquest; opening the chest, taking out the lungs, and extracting the filled tooth. "No signs of any other disease were found, except that caused by the mercury, and it was made clear to the jury, by the doctor, that this caused his death."

S. W. Allen testified: "Mr. Smith had asked him to see a dentist for him; that Mr. Smith afterwards told him that he had been to see Dr. Keef, who had filled the tooth; that he had filled it without killing the nerve, and that he (Smith) said that the dentist was intoxicated when he did the work."

The jury returned a verdict that "the deceased came to his death by suffocation, caused by inflammation of the glands and infiltration of the tissues of the neck, producing closure of the trachea by pressure thereon; and we further believe that the above causes were brought about by the action of mercury used in filling the second molar tooth of the right side of the lower jaw, by Dr. E. D. Keef, of Marysville, Kansas."

It does not appear in the testimony in the case how long after the tooth was filled before death, nor how long after the tooth was filled before the trouble came on, nor whether or not the tooth itself began to cause trouble in and about it before symptoms of salivation came on; neither does it appear how large the filling was, or whether or not the filling came in contact with the gum, nor what portion of the tooth was decayed.

All these facts would be of importance in the investigation of so grave a case as this, where a life has been lost, and where censure is liable to fall on the dentist who filled the tooth, if not criminal prosecution. It does not appear in the investigation that mercury had not been taken by the patient, before filling the tooth, for some other cause, and the system just at that time somewhat under its influence, and the salivation a simple coincidence only. It would appear from Smith's own statements about the dentist not killing the nerve in the tooth that there must have been an exposure of the pulp. If so, the probability is that the nerve died under the filling, producing all the horrible symptoms and consequences as detailed. The statement says, "It was known in town that he had been suffering for some days with a swelled face and neck, coming from a tooth which Dr. Keef, of Marysville, had lately filled; but his death was not thought possible."

If the medical gentlemen in attendance had decided that the amalgam in the tooth caused the trouble, and the tooth itself was sore and tender, they should at once have removed the filling or the tooth; if the tooth was sore and painful, and the swelling first made its appearance about the tooth, it would be conclusive evidence of a dead or dying pulp under the filling, which in certain constitutions would be sufficient cause for all of the symptoms and consequences in the above detailed case. If the tooth filled was more affected than any of the other teeth, there is reasonable probability that a dead or dying pulp was the cause, and the same thing may have happened if os-artificiel, gold, or anything else instead of amalgam, had been used in filling. If the trouble was that of salivation alone, from the vapor of mercury during the process of hardening of the amalgam, the effects in the mouth would have been general, not local, nor confined to that tooth at all, as the action of the vapor would have to take place, first, through the lungs, then through the circulation, localizing itself afterwards; as the amalgam itself is not susceptible of producing any specific mercurial action; as no sensible change takes place in a filling in a tooth for a considerable length of time,—even then only a slight darkening,—the result of an oxide of silver, not of mercury, which is an insoluble, innocuous oxide, and perfectly harmless anywhere in the body. The acids of the mouth are too weak to produce salts of the materials of amalgam. The insignificant amount of evaporation of mercury in one filling could not amount to much. According to my experiments with amalgam, twenty-four grains of the filings unite with fifteen grains of mercury, and lose two grains only by evaporation on drying. This amount of amalgam would more than make any common-sized filling; half that amount would be largely over the average size of amalgam fillings. The evaporation of mercury would only amount to about one grain or less, all told. I am fully convinced that this amount of vapor of mercury inhaled into the lungs and absorbed by the blood would not, under any circumstances, of itself produce salivation.

* * *

In the fall of 1862, I recollect a very serious case of swelling of the throat and neck, to such an extent that the life of the patient was almost despaired of for several days, in consequence of temporarily stopping the right second molar with gutta-percha, which was followed with immediate swelling—so much so that the mouth could not be sufficiently opened to remove the filling or tooth; in consequence, the case had to be treated with tooth and filling remaining in. Abscess was found and was lanced, followed by a copious discharge of pus, which also broke on the outside, and continued to discharge profusely for over two weeks, and subsequently, indeed, in a fistulous opening, which continued several years, until the removal of the tooth.

The inflammation in this case, at first, was erysipelatous in character, accompanied with copious ptyalism very similar to mercurialization, though I am not aware that the patient had taken mercury any time very recently before the occurrence.

The tooth was not worked at to any extent, when filled, and any other kind of stopping would have had the same result, as the patient took a severe cold just at that time.

Without the closest treatment and attention, I believe this patient would have died from suffocation in consequence of the gutta-percha filling.

It seems to me that the decision of the doctors and inquisitors was an *a priori* decision, without a proper knowledge of all the facts in the case. Why was there an inquest held at all in the case, unless the attending doctors wished to shirk responsibility, and cast the blame on the unfortunate dentist concerned? I again repeat that, if the tooth was the primary seat of trouble, the tooth should at once have been removed, which would (*no doubt in my mind*) have relieved the whole difficulty, and saved the life of the man.—*Dr. S. P. Cutler, in Dental Register.*

IMPORTANCE OF PHYSIOLOGICAL KNOWLEDGE IN MECHANICAL DENTISTRY.—Permit me to call the attention of the readers of the journal to a practical fact in reference to the use of spiral springs and their relation to the temporal muscle. This muscle, as is well known, is attached at its upper extremity to the squamous portion of the temporal bone, near its junction with the os frontis; passes under the zygoma, and its lower end is inserted around the coronoid process of the lower jaw. The function of this muscle is to draw the lower jaw upwards when in the act of cutting, tearing, or grinding food, acting simultaneously with other muscles essential to these complex motions.

With this knowledge of the function of the temporal muscle there seems to be something purely empirical in the application of spiral springs, which, in general, are used when there are not any teeth left in the upper and lower jaws, or when there may remain only a few very tender teeth, perfectly unfit to give any security to those artificially supplied.

For there is not to my knowledge any definite rule, based on a sound theory, as to the exact length of spiral springs, as they are only regarded as assisting in keeping the dentures *in situ*, and not, as I conceive, that besides this purely mechanical assistance they should also act vicariously for or in connection with the temporal muscle.

But in the majority of cases where spiral springs are attached to a set they do not extend further, or a very little further, back than where the second molar has existed, in consequence of which it has often happened that in case of violent gaping, or when there exists any bronchial irritation, which may induce a sudden cough, to the annoyance of the person, it is not uncommon that his set may be forcibly ejected from his mouth in consequence.

It is bad enough if it occurs at home, but much worse if at a public dinner-table; then, indeed, the wearer must feel great chagrin, and some little trial of temper, if he notices that there is a great effort made by the observers to suppress their laughter.

If, however, springs were regarded as subordinate agents of the temporal muscles, and were used much longer than ordinary,—that is, that they should extend as far back as the rise of the coronoid process,—such an accident could not happen.

Having been between forty and fifty years in practice, I still take an interest in the profession, and these lines were written in consequence of seeing a case in which the spiral springs must have been *two inches and a half in length*, and they gave such a powerful leverage as not only to hold up firmly both the upper and lower dentures, but to forcibly keep them in their places; and by acting simultaneously with the temporal muscles they imparted to the lower jaw a very natural and easy motion.

If these few observations are worthy of a place in the journal, they may be suggestive, and call forth many lucid and practical remarks on the subject.—*J. L. Levison, Esq., in British Journal of Dental Science.*

Radicalism.—There seems to be in our country a growing tendency towards radicalism in dental practice; a notion, a feeling, more than a demonstration, that *we* are sure of the ground upon which we stand, as our predecessors were not; that the line of practice adopted by *us* must be correct, and therefore does not require any further investigation at our hands. So we fill every tooth with gold that requires filling at all; perhaps even we put upon our fee bill "nothing but gold used for fillings;" ignoring the many uses of gutta-percha, tin, and oxychloride of zinc, and amalgams; or we have become advocates for heavy foil, and we fill everything in the shape of a carious tooth with heavy foil, and mallet it home, producing a filling intensely hard, but ill adapted to the walls of the cavity, porous through its entire mass, and coarsely porous too, as much more as the foil is heavier than will easily pack to solidity with the usual pressure; or we have taken to the restoration-theory, and build out indiscriminately all broken or cut teeth to their original shape and size; or even exaggerate, in order to prevent future decay from the contact of tooth with tooth.

Perhaps we are firm believers in the mallet, and decline to fill any cavity that cannot be reached by the mallet plugger—so we use the chisel, and spare not, with the end in view of being able to obtain direct access, the result being that we practically pronounce gold better than tooth-substance.

To continue the list of extremes into which we run, would be but to enumerate our failures; for in just so far as we violate a natural law we fail of success in any undertaking, physical or moral, while our successes are all made by our harmonizing our acts with the processes of nature.

Much of this extremism, I am persuaded, has arisen from pecuniary considerations, either from the old idea that as gold is intrinsically valuable, *therefore* any operation performed with gold is more valuable than any other; or else from a pandering to the false popular idea to the same effect, not taking the trouble to teach first one's self and then one's patients that oftentimes the most perfect gold fillings, inserted without strict regard to both anatomical and physiological knowledge, may be not only worthless, but positively injurious, giving rise to destruction of the pulp, discoloration of the tooth, abscess, and perhaps loss of the tooth or necrosis of the bone, or both.

How often are a few words of advice of more value than the best filling ever inserted, costing hours of labor and corresponding expense! If time were taken as the basis of all professional charges, much of this inconsistent practice would after a little disappear, for it would be perceived that one's time would be rated valuable precisely in proportion to one's acquirements, and he who was best able to diagnose (see through) a case, and treat it, would be the one who would secure the most desirable practice and the most remuneration, and he can then perfectly afford—pecuniarily—to use tin, or gutta-percha, or any other material he may deem best for a filling, not only, but he will often see the need for variation from any one line of practice; just as the educated physician is not the man who goes about with calomel in one pocket and salts in the other, and deals them out with little regard to the pathological state of his patients.

There are many operations made in gold by dentists, that are so wearing upon both patient and operator, and so expensive pecuniarily, that the patients are deterred from visiting a good dentist again, the result being that there is positive loss to both patient and operator. It would have been better to insert tin, or perhaps even amalgam (bad as amalgam is in the generality of hands). I know several patients of great wealth, in whose mouths gold fillings, inserted by some of the best operators in New York, fail to preserve the teeth, while tin and gutta-percha have proved to be quite as durable, easier to insert, less expensive, less painful, and more comfortable after insertion, than gold. Yet as large fees are paid for these operations, estimated by the time consumed, as was paid for the heavy gold fillings, costing from $25 to $75 apiece.

A little child, from three to six years old, requires fillings in its temporary teeth. How much better in every respect a filling of thin and pure tin, susceptible of being placed in a few moments, or one of gutta-percha, or oxychloride of zinc, that can be placed in one minute or two perhaps, than one of gold, that, by its wearying power, will prevent the little patient from believing in the benevolent designs of the operator, and will destroy the influence for good for all future time. Yet a little more obedience to the evident laws of nature would have given the child the most complete preventive armory known to dental science.

Does any one ask how the scattered members of our profession are to attain to such professional skill? Simply by reading and comparing books with books, and men with men. I met, not long since, a dentist living in the little city of Liege, in Belgium, who was fully up to the best standards of practice that are generally recognized among us. I asked him how he had accomplished it. He told me he took all the dental magazines that he knew of, in all the languages, and read them, carefully comparing the various views expressed, and putting in practice what to him seemed philosophical.

He often spends hours over one operation, and receives corresponding compensation; and yet all his colleagues receive a fixed fee.

So much for independent research and individual thought. It is sure to bear fruit.—*Dr. E. A. Bogue, in Canada Journal of Dental Science.*

DISTENTION OF THE ANTRUM.—Mr. Warrington Haward read a paper on "Three Cases of Distention of the Antrum." The first was a boy four years old, in whom, after pain in the upper jaw and discharge from the nostril, the antrum became distended, and an opening formed on the prominence of the cheek. Several other cases were mentioned in which an opening formed in the same situation. The treatment consisted of puncturing the antrum through a tooth-socket, and syringing the cavity with astringents. The second patient, aged twenty-six, had what he thought to be a boil on the cheek, which during eight months had discharged matter. This proved to be an opening leading to the antrum, which was slightly distended. He was treated by syringing through the opening. The third patient, aged fifty, had a solid tumor growing from the alveolus of each upper jaw, and one which had been soft, but had become bony, on the alveolus of the lower jaw. There was marked distention of the right antrum by fluid. The tumors and adjacent alveolar process were removed from the upper jaw, and the floor of the antrum opened to evacuate the fluid and allow examination of its cavity. The antrum contained no solid growth. The tumors were oval-celled sarcomata. The patient died from recurrence of the growth and the development of secondary tumors in the abdomen and elsewhere. The first cases showed with how slight a distention of the antrum an opening might form on the cheek, and pointed to the necessity of obtaining an exit for the fluid into the mouth as early as possible. The last case showed that when distention of the antrum occurs in connection with a solid tumor of the upper jaw, it does not follow that this distention is due to solid growth,—a point sometimes of much clinical importance.

Dr. Anstie asked what amount of neuralgic pain was present.

Mr. Haward called it neuralgic because it was in the course of the nerves. It did not regularly remit.

Dr. Anstie thought there was no neuralgia without great peripheral tension.—*Medical Times and Gaz.*

Acute Abscess; Sinuses.—Mr. Maunder observes that though such cases may at first sight appear of trifling importance, yet, since they are of common occurrence, they are worthy of study. He defines an abscess as a circumscribed inflammatory swelling containing pus; and conceives that its production is due to irritation of a part occasioning great congestion, and with this effusion of inflammatory lymph, which, after the lapse of a few days, is partially absorbed and partially degenerates into pus.

*Treatment of this Superficial Abscess.*—If the pain be not great, and the constitutional disturbance *nil*, the application of a hot poultice will suffice; and this will relieve pain and promote "pointing." By "pointing" is meant a tendency on the part of the abscess to discharge itself; and this it does by what is termed "progressive absorption," all the structures between the pus and the surface being disposed of with the exception of the cuticle. This latter having desquamated, the abscess has opened spontaneously. But there are circumstances under which it is not desirable to leave the case to nature, as when there is much constitutional disturbance; when it is situated on the neck or face, especially of the female, whom it is desirable to disfigure as little as possible. In such cases a small incision should be made, and, if the abscess be seated on the cheek, it should be punctured within the mouth.

If the abscess be situated beneath a deep fascia, it should be opened early,—the most dependent part being selected.

Sinuses are frequent sequelæ of abscesses, and various methods may be employed—such as the careful dressing by means of compress, strapping, and bandage, so as to keep the walls of the sinus in contact, and thus prevent accumulation of pus; the injection of stimulating lotions, as the nitric acid, the carbolic acid, the iodine, etc.; and simple slitting; but the radical and most expeditious means of cure is to slit them up on a director, and then to carry the incision at either end of the sinus some half-inch into the sound structures, to form a channel for the ready flow of any future secretion, and to prevent bagging at the extremities. Then, with a pair of scissors curved on the flat, Mr. Maunder cuts away to a level with the healthy skin the thinned and overhanging integuments of either side. In this way an open and almost level wound is obtained, which soon heals by cicatrization. The scissors should be used when the sinuses appear to run close under or in the substance of the skin itself, rather than deeply in the subcutaneous tissue. The roof of the sinus will be found to be very thin, and, when slit up, each half will have a tendency to curl, and so, if left, to form two sinuses instead of the original *one*. Sinuses connected with strumous glands of the neck may often be cured by this method of treatment.—*Dr. C. F. Maunder's Clinical Lecture, abstract in Half-Yearly Abstract.*

CANCRUM ORIS.—During the years 1863–64, it was my privilege to be the assistant of the late and much-lamented Henry Whittelsey, M.D., then the resident physician at the Nursery Hospital, on Randall's Island, New York City.

It was our fortune to have, during the year, a large number of cases of cancrum oris, and our conclusions with reference to this peculiarly fatal disease may be of interest to the profession.

This formidable affection—which is a malignant form of ulcerative stomatitis—is a disease of debility, induced in children under five years of age, predisposed to tuberculosis by a want of cleanliness, proper food, and care; and appears chiefly in those who are received into our hospitals from the almshouses, jails, and poorly-ventilated lodgings,—those dark, damp, filthy apartments, where congregate the vice and destitution of our large cities.

It appears generally as the sequel to rubeola, scarlatina, or some other debilitating disease. It occurs at all seasons of the year, but is most prevalent during the summer months. That it is a contagious disease, though in a limited degree, cannot be doubted, yet I believe that only those who are badly nourished, and of a tuberculous or scrofulous diathesis, are liable to be affected.

*Mode of Access.*—The system being in a morbid state, a simple shallow ulcer makes its appearance on the inside of the cheek, or between the two incisor teeth of the upper jaw, at the junction of the frænum labii superioris with the gums, causing the lips to swell rapidly and enormously, the teeth to loosen and drop out, and a general destruction of the parts; or it may commence in the mucous membrane of the throat, or roof of the mouth, destroying everything in its course.

A description of this disease as it appears and progresses when commencing in the cheek—its most common form—will suffice to show all its characteristic features. The first thing noticeable is a slight circumscribed swelling, hard, painless, red, tense, and shining, resembling somewhat the sting of a bee. A very small whitish ulcer will now be found on the inside of the cheek, corresponding in position with the center of the external induration. The breath is slightly fetid, and an increase in the secretion of saliva is apparent. The ulcer very soon becomes ash-colored, and rapidly spreads, assuming a phagedenic character, discharging an offensive dirty-colored fluid. In two or three days a black depressed spot appears on the outside of the cheek, corresponding in size and position with the ulcer within. In the course of another day a small hole is seen in the center of this gangrenous spot, through which oozes, drop by drop, the offensive acid discharge. The face now assumes a peculiar ashy-yellow color, swells greatly, frequently to such an extent as to close both eyes; mortification goes on rapidly, often involving the whole cheek, and exposing the cavity of the mouth. The bones of the face may become affected with necrosis, the teeth fall out, and the little patient becomes a most frightful spectacle to behold, while the horrible stench that arises is wellnigh unbearable. The constitutional symptoms are extreme prostration, with rapid, feeble pulse, increasing as the disease advances. The mind is usually clear to the last, yet the little patient lies in that listless and indifferent condition so common with typhoid patients, and dies from sheer exhaustion.

The duration of this disease is from six to sixteen days, running a most rapid course when commencing in the cheek or throat, but somewhat slower in its progress when commencing in the gums.

*Diagnosis.*—This can be mistaken for no other disease. Its first stage is that of ulcerative stomatitis; but it differs from the simple form of this disease in the marked and constantly increasing debility of the patient. It also speedily assumes its diagnostic phagedenic character, becoming gangrenous usually in two or three days from its inception.

*Treatment.*—This disease demands prompt and energetic treatment. As soon as an ulcer shows itself, I commence with the chlorate of potassa, in from five- to ten-grain doses every four to six hours, and continue the administration of this medicine—which is justly considered almost a specific in the simple form of stomatitis—during the whole progress of the disease. We must not, however, rely wholly upon this remedy. Our chief hope lies in preventing the ulcers from assuming a phagedenic character, and to meet this end the part should be thoroughly cauterized as soon as any signs of sloughing appear. The child should be immediately transferred to a room separate from all other children, and every care taken that the disease be not communicated to others, and all cases of stomatitis then in the hospital should be at once cauterized, even before assuming the characteristic malignant features. Of all the caustics, I prefer the solid nitrate of silver, for most cases; yet it will often be necessary to use the acid nitrate of mercury, strong hydrochloric acid, bromine, or other powerful caustics; and even then we too often fail in our attempts to prevent the rapid spread of the disease. The mouth must be frequently washed with a weak solution of liquor sodæ chlorinatæ, ℥i to water ℥xij, and after mortification has commenced a pledget of soft linen, wet in this solution, should be constantly kept between the sore and the adjacent tissue. Tonics and stimulants should be freely given on account of the great prostration; and iron with bark or quinine in as heavy doses as the child will bear, and strong beef-tea in place of solid food, which latter the child will almost invariably refuse to take, are best.

*Prognosis.*—Cancrum oris must be regarded as a peculiarly fatal form of stomatitis; in fact, every case that came under our observation, fourteen in number, when the disease was not checked before becoming gangrenous, died. Out of sixty-seven cases of stomatitis treated during the year, there were nineteen deaths, or twenty-eight per cent. This includes not only every case that was regarded as cancrum oris, but five others which, having the same characteristic features, proved fatal before the disease reached the gangrenous state.—*Dr. C. S. Kittredge, in Western Lancet.*

ON CHANGES IN PUS.—As chemistry is not sufficiently advanced to furnish us with any account of the various changes and transformations of which pus is susceptible, we are obliged to restrict our attention directly to physical observation and indirectly to clinical observation.

It will be acknowledged that all pus, after it has been exposed for some time, whether the patient is feverish or not, is altered. To prove this, it will suffice to bear in mind what occurs when a chronic abscess has been opened by the direct method. The abscess and the pus, which for a long time have remained inoffensive, excite, on exposure to the air, a set of symptoms which contrast singularly with the previous inoffensive calm which had persisted for whole months while the pus remained subcutaneous. What has occurred to bring about so rapid a change? The contact of the air has been sufficient to modify the organ and to alter the product. By its penetration into the cavity of the abscess and its contact with the pus, it has converted a physiological into a pathological product. Some persons are disposed to recognize in this double fact the result of inflammation propagated from the external opening to the walls surrounding the purulent collection; but it should be remembered that when care has been taken to make the external opening according to the rules of the strictly subcutaneous method, inflammation never passes beyond the point where this opening has been made. It is a common notion that air acts as an agent of decomposition on all organic products, including pus. With regard to the influence of air upon the walls of the purulent sac, this is a special case of the great law of the influence of air upon all exposed wounds.

The changes of which pus is susceptible differ in their *modes* and *degrees* under the influence of atmospheric ferments and the influence of the activity of the organism which is itself in possession of specific elements of impurity. But as the pus itself is but the more advanced transformation of the fluids originally excreted by the wound, one may, in order not to establish between the different degrees of this transformation an arbitrary solution of continuity, consider these degrees as a single process exercising at different periods and in different degrees a local and general influence, which varies according to these periods and these degrees, but is one and identical in its essence. But what is this local and what this general influence?

Locally, the contact of altered fluids produces two effects upon the sensible elements, the vessels and the nerves of a wound. The former, according to the nature of the alteration, either maintains or causes to cease the constriction of the vascular orifices, and consequently obliterates or opens these. The second is, that the contact of the altered fluid becomes the incessant and very active cause of abnormal and purulent supersecretion. The contact of pus excites pus. But, at the time that the orifices of the afferent vessels thus stimulated continue to pour out in abundance fresh quantities of purulent or pseudo-purulent fluids which are mixed with the pre-existent pus, the efferent vessels become filled with the fluid by which they are bathed. This fluid, under the influence of the atmospheric pressure, incessantly insinuates itself into the open canals, and carries with it all the elements of which it is composed; unless, however, the vascular extremities still remain in the condition of contraction which characterizes the first period of organic paralysis, in which case absorption does not take place either by imbibition or by endosmosis.

There is then, I hold, in every suppurating wound an uninterrupted double movement of supply and removal, and consequently an incessant penetration of the purulent fluid secreted and poured out at the surface of the wound; a penetration which carries far into the circulating torrent that which originally existed on the open surface. This capital fact is rendered certain by an experiment which I have repeated many times, and which has enabled me to establish that absorption—the mechanism of which process in physiology is still a matter of conjecture—is veritably the effect of atmospheric pressure acting upon surfaces folded into spaces at a tension less than the surrounding tension. But in applying this entirely experimental datum to the mechanism of the absorption of fluids spread over the surface of wounds, it should not be forgotten that this absorption must be constant and uninterrupted, and that it establishes, as has been stated, a continual exchange between the local products of the wound and the circulating torrent which by turns supplies and receives these products.

The first and immediate consequence of this order of occurrences is that the fluid produced and poured out on the surface of the wound, as well as those which stagnate there, of whatever nature they may be, and whatever degree of change they may have undergone, penetrate incessantly into the organism and introduce there the morbid elements with which they have been impregnated.—*M. Jules Guérin; translated from Gazette Hebdomadaire for Half-Yearly Abstract.*

THE SOURCE OF NERVE FORCE.—Mr. J. St. Clair Gray is the author of a view concerning the origin of nerve force, which he is very judiciously endeavoring to verify by actual experiment. The author, starting from the assumption that this power had in it an electrical element, arrived finally at the conclusion that its source is to be sought for in the sulphur and phosphorus in the animal system.

It is well known that phosphorus exists in considerable quantity in the brain, and that sulphur is present in the liver, while an alkaline fluid is in constant circulation between them.

To determine the fact as to whether a combination of similar elements would generate an electric current, he constructed a cell containing caustic potassa, in which were placed sticks of sulphur and phosphorus. Chemical action very soon set in. The phosphorus was soon converted into an oily mass, the sulphur gradually wasted away at the point of contact with the former, while potassa salts were formed in the solution. The operation was attended with the evolution of phosphuretted and sulphuretted hydrogen.

The action seems to be very gradual, since we are informed that at the end of three months it was still going on. The presence of an electric current in the cell was conclusively established by the electrometer, the electro-motive force of the current being found to be superior to that of the Daniell cell.

Having thus established one fact in favor of his hypothesis, the author next proceeded to test its truth under the actual conditions of life. The leg of a frog was prepared as a galvanoscope according to Galvani's directions. A rabbit was then chloroformed, and through an incision in the abdomen an insulated copper wire was introduced into the substance of the liver, and another similar wire passed through the optic foramen into the brain. The free ends of the wires were then brought into contact with the exposed nerve of the frog's leg, when powerful convulsions were produced in it; a very clear demonstration that an electric current does exist between the brain and the liver. From these facts the author infers that the source of the current is the action of the alkaline fluid on the sulphur and phosphorus in these organs; especially since he has shown, from his experiment with the cell constructed on this principle, that the combination of these elements is capable of generating a very powerful current.

The experiments are still being continued, and we shall doubtless soon be informed either that subsequent investigation has disproven this ingenious theory, or that the source of nerve force is discovered. The very obvious objection that sulphur and phosphorus do not exist *as such*, but as compounds, in the liver and brain, must, of course, be considered as militating against the author's views, until it is shown to the contrary.—*English Mechanic* and *Jour. Franklin Institute.*

NEURALGIA OF ALL THREE BRANCHES OF THE FIFTH NERVE EXCITED BY SYPHILIS.—Dr. Anstie read to the Clinical Society of London, Nov. 24th, the further and concluding history of a case of which the earliest notes were read last session. It was an example of neuralgia of all three branches of the fifth nerve, immediately excited by constitutional syphilitic infection, and which was of recent date. The case was one of a remarkable character. The nerve had been *predisposed* to neuralgic pain; many years before the syphilitic infection it had been the seat of an ordinary typical *migraine*, of great severity; and at present it was very noteworthy that the painful and tender points were distributed, not according to the type of tertiary syphilis, but according to that of ordinary neuralgia. Moreover, a number of secondary lesions (unilateral facial anæsthesia, unilateral loss of taste in the tongue, unilateral spasm of muscles, etc.) were distributed exactly as such secondary affections were in severe neuralgias where there was no question of syphilis. Besides these curious phenomena, there were a series of paralyses of the ocular muscles, quite of the ordinary syphilitic type. Thirty grains of iodide of potassium daily completely cured the neuralgia, the anæsthesia, the loss of smell and taste, and the muscular spasms, in a little more than a fortnight. The ocular paralysis proved exceedingly obstinate; but the prolonged use of iodide in larger daily doses (forty-five and then sixty grains) at last completely removed it. It was a singular fact that, during the full progress of the muscles toward recovery, unmistakable symptoms of iritis made their appearance; they were checked by a short course of mercury. Such a case as this was sure to be marked, in the future, by the repeated recurrence of tertiary syphilitic nerve lesions.—*British Medical Journal.*

TREATMENT AND SYMPTOMS OF TIC-DOULOUREUX.—The author wishes to make for neuralgia, in general, a distinction between those cases in which the paroxysm of pain has a continuous course and varies only in intensity, and those which clearly consist of short attacks. The latter character is especially that of the eccentric neuralgia, and depends upon a reflex irritation of the vasa nervorum.

In neuralgia of the trigeminal nerve these two forms of neuralgia must be sharply divided: to the first forms should be given the name of neuralgia of the trigeminal nerve, to the second alone the name of tic-douloureux.

Tic-douloureux is generally associated with increase of temperature, œdematous swelling and tension of the facial muscles, and sometimes enlargement of the carotid artery on the affected side. In some cases, on the other hand, there is cyanosis of the face and contraction of the carotid.

Among remedial means, galvanism stands in the first place,—applied partly along and across the head, and partly to the sympathetic nerve. In recent cases one or two sittings suffice for cure; severe cases of long standing require about fourteen days; relapses a shorter time. With very severe cases, galvanization does the most good at the first attack; relapses it does not much relieve. Here is the opportunity for an operative attempt. In a small number of cases under the author, the affection was not influenced by the galvanic treatment.

The author restricts the use of subcutaneous injection of morphia to incurable cases of neuralgia. In cases of dilated carotid he has seen the practice of digital compression followed by good results.—*Prof. Benedikt, of Vienna; translated for Half-Yearly Abstract.*

EXCISION OF RIGHT HALF OF INFERIOR MAXILLARY BONE FOR CANCEROUS DISEASE.—On January 7th, Patrick Barrett, aged thirty-two, born in Ireland, appeared at the clinic of the Jefferson Medical College, with a large and painful tumor on the right side of the face and neck. This tumor is firm in consistence, rather irregular in shape, somewhat nodulated, and extends along the outer and inferior aspect of the body and part of the ramus of the inferior maxillary bone, to which it is firmly attached. It is about four inches in length and breadth, and extends from the ramus nearly to the symphysis of the jaw. He describes the pain as being constant, and of a burning, sometimes lancinating, character; is aggravated by motion of the jaw, and prevents his sleeping at night. He appears exhausted and anæmic. His history is as follows:

For many years he was a musician, and played a cornet in the British army. About eight years ago, while stationed at Malta, there appeared a chap or crack in his lower lip, about an inch from the angle on the right side. This would nearly heal, and then reopen on a slight strain, as in laughing. He thinks that it was irritated by the cornet. Two years after this first appearance of the sore he gave up playing the instrument and became a laborer. When he resigned his position in the band he went to England, and after a year came to this country. During all this time, and for two years subsequent to his arrival here, the sore on the lip was persistent, breaking open and bleeding frequently; very much in the same condition that it had been in the five years previous. After having been two years in America, he noticed a hard lump at the seat of the wound, which slowly enlarged and ulcerated. This was pronounced cancer, and carefully removed a year afterwards by Dr. Price, of this city. About eight or nine months after the operation (or about six months ago) he noticed the enlargement of a gland below the lower jaw. As he had formerly been subject to an enlargement of the cervical glands, which soon subsided, he thought this of no consequence. This one, however, steadily increased, forming a movable tumor beneath the jaw, which, about two months before his appearance at the clinic, became firmly attached to the bone.

In December last he had typhoid fever. While recovering from this, he noticed that the gland enlarged more rapidly. Since then it has grown with greater speed and become excessively painful, the pain darting across the face in the direction of the nerve and through the body of the bone.

As he was still weak from the fever, Prof. Pancoast prescribed for him tinct. ferri chlor. and quinine, with a nourishing diet; and, as he was unable to sleep,

℞.—Chloral. hydrat., gr. xx.

at night. Ordered to the hospital.

The lecturer remarked that the primary lesion in this case had been chronic ulcers of the mouth and lips, and that these are apt to be developed into epithelial cancer. When the surgeon cut away the cancer by a V-shaped incision, he had perhaps not warned the patient that in case any of the lymphatic glands below the jaw became enlarged, and the enlargement could not be dissipated by the use of common liniments, they ought to be promptly removed, or they would take on the original disease, which would finally involve the lower jaw through its periosteum, following it down even into the sockets of the teeth. He stated that he could not too deeply impress the minds of his class with the absolute necessity, in these cases, not only at the time of the operation of removing any enlarged lymphatic glands at the base of the jaw, but also of warning the patient expressly of the liability of the disease to return in these glands.

On section of one of these glands in an advanced state of disease, we find them filled with a multitude of cancer-cells, which possess a self-proliferating power. These newly-formed cells spread in every direction,—even, through some as yet unexplained cause, directly contrary to the course of the absorbent vessels.

The causes of epithelioma are not well understood. It occurs more frequently in men than in women, the latter being more liable to scirrhus. Primarily, it is a disease of the outer surface of the skin that forms the epithelium; hence its name. In its origin it is confined to the derma of the skin and mucous membranes, and most frequently occurs in the mouth, face, anus, and penis. It is more frequent in the lip, and especially the lower, than elsewhere. While confined to the skin, its progress is generally slow, and in this stage a free application of chloride of zinc, or simple excision of the surface, will effect a cure. But when it attacks the subjacent tissues its action is more rapid, becoming in the course of time, to all intents and purposes, identical with scirrhus. In its subsequent course it forms an unhealthy, eroding, ulcerous tumor, discharging a thin acrid fluid of offensive character. This ulcer shows no disposition naturally to heal, but, on the contrary, steadily extends through all the adjacent tissues. When the disease reaches the periosteum there is no possibility of saving the bone or arresting the disease, save by excision of all the parts affected.

A slow but horrible death threatens our patient,—that of a large, painful, cancerous ulcer eating into the face and jaw, and discharging offensive fluids into the mouth which poison the breath, and find their way into the stomach with every mouthful of food; portions of the bone are discharged into the mouth, the constitution finally becomes undermined, and the patient sinks under the attendant suffering and exhaustion. The only means, and that a far from certain one, of averting this fearful result, is prompt excision of the diseased bone,—the necessity of which could possibly have been obviated had he applied for relief earlier, while the gland was yet unconnected with the periosteum of the lower jaw. This operation will be performed as soon as the patient is in a condition to bear it.

January 17th.—The patient was brought in for operation. He has improved under treatment, and has been able to sleep at night with the aid of the chloral hydrate. The patient being in a sitting posture, ether was now administered to him as an anæsthetic. This position Prof. Pancoast prefers in operations on the mouth, as it allows ready egress to the blood and prevents its being swallowed. With the use of chloroform this position would be considered less safe. An incision was now made in the lip through the cicatrix of the previous operation down to the lower border of the jaw-bone, the canine and second incisor teeth drawn, and the bone sawed partly through and snapped with the bone-forceps. An incision was carried round the base of the tumor and behind the ramus of the jaw. The soft parts were then carefully separated from their attachments to the outer side of the tumor, up to the insertion of the temporal muscle, which was then severed. The inner face of the bone was then freed with the knife, and the bone, thrown into subluxation, was drawn forward and twisted round several times in its socket. The external pterygoid was divided at its insertion, and the remains of the capsular ligament cut with a Cooper's hernial bistoury. A few branches of the internal maxillary artery, connected with the muscles, were tied during the progress of the operation, which was completed with the loss of scarcely a wineglassful of blood. The edges of the wound, both mucous and cutaneous, were approximated with silk sutures, and the carbolated oxide of zinc ointment applied, with adhesive straps and a supporting bandage. Some oozing, apparently from the pterygoid arteries, required the introduction of a piece of lint, wet with a weak solution of Monsel's salt, to the top of the wound.

January 24th.—The patient came into the clinic-room, and reported himself relieved and comfortable. The wound was nearly healed, and he was doing well.

January 31st.—Patient again presented. He sleeps well, has a good appetite, and is free from pain. Has not had a single untoward symptom since the operation, two weeks ago to-day. The wound is entirely healed, except at its lowest point, which has been kept open to afford a means of exit to the fluids. He is wearing a bandage to maintain the parts in apposition. He can open and shut his mouth, and has perfect power of mastication on left side.

February 9th.—Discharged from the hospital to-day, cured within a month from the date of an operation which must be regarded as an important one, especially from the risk of wounding the internal maxillary artery, which is in immediate proximity to the neck of the jaw-bone.—*Prof. Jos. Pancoast's Clinic, Jefferson Med. College, in Phil. Med. Times.*

Dislocation of Inferior Maxillary.—Miss ——, while having a third lower molar extracted by a neighboring dentist, suddenly dislocated her lower jaw; the appearance of the face, with the great distress, was very comical. I applied a split cork between the last molar on each side, and placed the thumb and forefingers of the right hand on the inside of the lower front teeth, and grasping the chin, and pressing with the other hand against the upper jaw, the head being held firm against the breast of my assistant, I drew forcibly forward, and the bones, leaving the zygomatic fossa, slipped gradually into place.

This, the old method, I think preferable to using the thumbs, and also giving a "*point d'appui*," by using one hand against the upper jaw. What is singular about the case is the fact that the dislocation, although a primary one, was effected without any considerable force by the operator or effort by the patient. It might have been owing to the relaxation so brief in effect of the nitrous oxide, but I have never seen any amount of suspended muscular action by this agent. I may mention, in this connection, that this anæsthetic, so loudly vaunted as harmless, has been followed, in many instances I have seen, by severe hysterical and epileptic convulsions, and I presume most practitioners have had the same experience. The late New York case (128 West Thirty-fourth Street) seems, from the reports, to be one of suffocation from obstruction in the bronchia or larynx, and as the pulse acted, if the head had been held directly downward and the arms rotated rapidly, its own weight would have removed the collected mucus or blood and have given the lungs air and saved the patient's life. This position, so *important* in these asphyxiated cases, seems strangely neglected in these accidents. The body must be *absolutely reversed* to do any good; *horizontal* position is not sufficient.—*Dr. H. S. W. Burritt, in Med. and Surg. Reporter.*

Congenitally enlarged Tongue.—Mr. Arnott exhibited a portion of a congenitally enlarged tongue. The child was fourteen months old when seen; at that time the tongue was large, swollen, and red, the saliva dribbling from the mouth. It protruded about half an inch at birth, and at the time when first seen about an inch. It was very thick, and could not be retracted. Mr. Simon removed some parts of the tongue, but the child died. There were now a good many similar cases recorded. The extra growth was rarely muscular hypertrophy. It either depended on enlargement of the vessels, interstitial proliferation, or lymphatic enlargement. All were present here. The teeth were not well through, so they did not grasp the tongue.

Mr. Fairlie Clarke narrated the case of an infant, four months old, who was born with its tongue at the tip of its chin. It diminished for a day or two, and then remained unchanged. Strapping was useless, as it would not stop on; so he removed a portion by the *écraseur.* It had sucked well. The operation interfered with sucking, but the child took food well and recovered. The tongue was now slightly clubbed and thickened at the end, but otherwise natural. All the tissues seemed hypertrophied.—*Proc. Path. Soc., Med. Times and Gazette.*

# HINTS AND QUERIES.

Can heavy foil, No. 20 and upwards, be used successfully with hand-pressure?
—Inquirer.

I have a gasometer for nitrous oxide gas, and I cannot keep gas in it for any number of days and preserve the strength. I make it from the best nitrate of ammonia and pass it through four jars,—one containing caustic potash, the second sulphate of iron, the other two pure *water*. It also passes through a lead pipe up through the tank, then six inches down into the water. Can some one give me the reason of this, or give me some instruction in regard to keeping it good and strong?—J. T. L.

Reply to "C S."—"Can the black be removed from Arkansas-stone used to sharpen instruments without the use of acid?" Yes. Common coal oil will make the stone *as clean as new* and as quickly as need be. The oil is excellent also in making the bearings of lathes run easy after "gumming" with machine or other oil. And when the hands are blackened from handling metal dies or flasks, the use of sweet oil or coal oil, rubbing the hands with a few drops and then washing with soap and water, even cold water, will make the hands become as soft and clean as a lady would wish to see or have about her mouth. It has been my method of cleansing my hands for fourteen years.—Bazin.

Reply to "C. S."—"Can the black be removed from Arkansas-stone used to sharpen instruments without the use of acid?" The reply of Tod is defective. Instead of pulverized pumice in connection with soap, use bicarbonate of soda, and the black coating on the stone will at once disappear. But if the stone is coated with sandarac varnish or other resinous gums, then take a small piece of ordinary sand-paper, on a flat surface, and rub the dry stone upon the paper.—J. S. K.

Reply to "W. C."—"What is the best mode of preventing the dark line at the junction of sections of gum teeth?" Do not bevel the joints much in grinding the teeth, just so that the thinnest spatula will enter. When arranging and waxing up, be careful to get no wax in the joints. When the flask is taken apart, wax, etc. removed, scald thoroughly; pack the joints in the usual manner with plaster and "liquid silex." When dry and trimmed off, paint the whole inside with collodion, particularly the joints. If the least particle of wax is left about the joints, the rubber is sure to show itself.—J.

Answer to "Sigma," who asks, "What is the best method of preventing occlusion of the teeth in cases of threatened periodontitis, or when for any other reason it is desirable to prevent the close antagonism of certain teeth?" I imagine from the writer's question that he has experienced the inconvenience of many others in wearing gutta-percha caps over the teeth, holding pieces of pine or rubber, etc., to prevent occlusion. The method that has proven the most successful in my hands and has given most comfort to the patient, is to take one of the bicuspids or molars that needs filling, or to remove a portion of the filling already in, and build up with crystal or adhesive gold to a sufficient height to prevent undue pressure against the tooth that it is desired to protect.—L. P. M.

Reply to "R. V. W."—The alloy known as "platina and iridium" is, as its name indicates, platina combined with a small quantity of iridium, and is a most important alloy for strengthening purposes. It possesses the rigidity almost of tempered steel, without its liability to break when bent. It is used in the form of a perforated plate to strengthen vulcanite plate, being imbedded in the rubber when the case is packed. In continuous-gum work it is used in the form of a continuous backing for the teeth, and adds quality to its strength. This alloy can also be swaged into any form; it is of course more difficult to handle than gold or silver, but with the assistance of a zinc counter die it can be easily managed. Pure gold must always be used to solder it; ordinary gold solders, either fourteen or eighteen carat, cannot be relied upon. It apparently resists the action of the fluids of the mouth perfectly.—C. G. E.

Hurried Operations.—This is a subject which has been much commented upon by various gentlemen of our profession, but I find that there is yet a great deal of need for further caution. In the diagnosis of a diseased organ, I observe in my practice the necessity of time and care to insure success. It is a great mistake to hurry operations. I see many teeth which appear to have been hurriedly treated and filled. A case came under my observation where the patient had an approximal cavity in a cuspidati filled with cement upon an exposed nerve. The operation, so I was informed, was hurriedly performed, the dentist saying it was not worth filling with gold. The consequence was, the tooth ulcerated, the filling had to be removed, and after much time and trouble was successfully refilled with gold.. Several cases of a similar nature, which have come under my notice, convince me that in the treatment of teeth more time and care should be given than is frequently done, and the tooth should not be filled until every chance of trouble is prevented —M. M. Levett, D.D.S., *New York.*

The Celluloid Base —Having now used the celluloid base for the last sixty days, and having put up some fifteen sets, we will report our success. We are very much pleased with it, and believe it will supersede rubber entirely. It is easier worked, and one-third time is saved. A set from the impression can be put in the mouth in five hours. We first prepare as for rubber, and then select the right number of plate, trimming the borders if too long, and then place in the clamps; and then, when the oil has been raised to 250° F., set it in the tank, and as rapidly as can safely be done raise to 310° F. We commence gently to put it together at 270° F., and when it can be turned with the two fingers, do so carefully. Use judgment as to the amount of pressure. Experience with rubber will suggest the amount of force. When up to 310° F., we put it down thoroughly and complete. Now, here is a secret to those who don't know, and to those who have not yet observed it, worth the knowing. Let the case remain in the hot oil ten to fifteen minutes after the fire has been turned off, to cure and harden. Some have thought if the base was a little harder it would be the better. By following this rule they will find the plates much harder and better. The camphor taste is hardly perceptible in the plates since last December. We are satisfied that with the care used to put up rubber as good and better sets in all respects can be made on the celluloid base. Improvements will of course be made, and if the company will put into the market a number of different forms of plates for pieces, etc., the base cannot help but crowd out rubber to a great extent very soon. It will not break like rubber, and if made about the same thickness, it will, we are satisfied, last as long and give better satisfaction in a majority of cases.—Rising & Andrews, *Rockford, Ill.*

What answer has Dr. Jack to make to the editorial matter on page 155, vol. iv., of *Missouri Dental Journal?*—B.

The filling of distal surfaces of molars and bicuspids is of so great difficulty, and the subject of so much importance, that Dr. Jack cannot let pass the disparaging and unkind expressions made use of at the place referred to, without some notice. While many others as well as himself have long been in the habit of using some plain device as an aid in filling distal surfaces, it was not found that such means were universally applicable; neither could the proper form of surface be produced.

On account of the variety of sizes of matrices furnished, this method may now be made available in almost every instance. The form of the surface may also now be varied from flat to contour at will, according to the depth and form of the depression in the matrix. It is this depression which makes the word "matrix" an applicable one.

Dr. Jack regrets that Dr. Judd has not made the attempt to fairly represent what he has described, and is surprised that at least some slight recognition was not made of what must appear an improvement when it is intelligently examined.

There is also an intimation that Dr. J. may have some pecuniary interest in the matter. So far from this being the case, he has always paid the usual retail price for these appliances, as well as for all the instruments connected with them which he has required for his own use.—L. J.

THE

# DENTAL COSMOS.

Vol. XIV. PHILADELPHIA, AUGUST, 1872. No. 8.

## ORIGINAL COMMUNICATIONS.

### DENTAL PATHOLOGY AND THERAPEUTICS.

BY J. FOSTER FLAGG, D.D.S.,

FORMERLY PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS IN PHILADELPHIA DENTAL COLLEGE.

[Entered according to act of Congress, in the year 1872, by J. Foster Flagg, D.D.S., in the Office of the Librarian of Congress at Washington.]

(Continued from page 357.)

It is by the process termed "reaction" that this result is obtained, *reaction* signifying that effort resulting from vitality which combats morbific influence and restores to health that which has been diseased.

I have said that under favorable circumstances normality is *apparently* re-established, and I have so expressed it in order to impress the knowledge that just in proportion as the deviation from normal has been great, so is the return to normal rendered less possible; slight deviations from this condition are usually followed by so close a return as to render any change imperceptible, but great deviations are equally usually followed by so imperfect a return as to render more or less constant a perception of the change which has taken place. Thus it is that we acknowledge *previous disease* as predisposing to recurrence of disease; and it is the recognition of this principle that enables us not only to explain many cases of dental disease, but renders it possible for us so to prepare for future contingencies as to easily afford relief should trouble at any time unfortunately supervene.

It will now be understood that *insufficient duration of application*, in the case of remedies peculiarly calculated to relieve and strengthen, must be detrimental, for upon their discontinuance the affected parts are found in the condition of an attacked and weakened army, partially reorganized by inspiriting influence, and then left without this support to a renewal of attack. The result would naturally be discomfiture, defeat, and rout.

Accepting the term reaction to signify a recovering from prostration, we must remember that "prostration" must always be regarded as relative; thus, one who is naturally feeble may become perfectly prostrated by slight exertion, localities in such individuals becoming perfectly prostrated by slight irritation; and in such, though the relative difference of condition cannot be great with regard to functional action, yet reaction will take place so moderately as to be scarcely perceptible, and will require an amount of time, and gentle, judicious assistance for the accomplishment of its object, in proportion to its moderation. Upon this principle rests the treatment of chronic and adynamic disease. One in the full vigor of health, from whom is demanded, as the sequence of any irritant, such functional effort, physical or mental, as eventuates in prostration, reacts with surprising quickness; and, indeed, when such an one is stricken down by the rapid progress of disease usual in such cases, it is the process of reaction—particularly the latter portion of it called "convalescence" (to grow well)—which is to be carefully watched, lest the natural vigor of the system may, through the demands of the appetite or the energy of the will, give rise to conditions which shall entail effects even more serious than would have resulted from the condition originally treated. These considerations we shall find to form an important part of the basis for our treatment of acute and sthenic disease.

I have said that when *true inflammation*, in the sense we now have of that condition, has from continuance of cause been established, the simplest curative process which can occur is that restoration of the parts to a healthy condition which in technical phraseology is known as

### Resolution.

*Treatment*.—In order to effect resolution, it is necessary, first, that the exciting cause shall be removed previous to the induction of that condition which, from its intensity or length of duration, must be destructive of vitality to a greater or less extent; and second, that upon its removal the system shall have sufficient strength to overcome existing disturbance, or that such aid shall be afforded as shall tend to prevent the aggravation or continuance of nervous, vascular, and functional aberration. When, therefore, our knowledge regarding the indications offered by the temperament, constitutional strength, extent of injury, etc., in any case under consideration, shall dictate as necessary, aid to nature for the furtherance of this object, the endeavor must be made with the view to a more or less rapid, *direct* restoration to health.

If *cold* or *cooling* applications are resorted to, care must be exercised, first, that their continuance is uninterrupted; second, that they are employed for a sufficient length of time to allow the parts to regain that degree of tonicity which shall enable them to *preserve* their integrity; third, that the intensity of cold shall not be such as that it may destroy vitality. If cool applications afford comfort, and gradual restoration is observed to progress, this result proves the efficiency of the treatment; but if, on the contrary, pain supervenes after a period of cessation, and increases in violence, *warm* applications may be resorted to with benefit. These are beneficial through stimulation, resulting in that degree of sedation which results from continued stimulation in less degree than is irritating. The sensation of comfort is here again the guide, and the applications should be such as shall maintain continuously that degree of heat which is *easily endurable* and *pain-obtunding*. *Astringents*, such as tannin, alum, krameria, acetate of lead, etc.; *anodynes*, such as laudanum, salts of morphia, aconitia, etc.; and *sorbefacients*, such as iodine, etc., will be found to possess qualities highly advantageous in the production of resolution.

*Conclusions.*—Inflammation consists visibly of too much blood in a part with its motion partly increased and partly diminished, with the presence of exudation corpuscles (white corpuscles, extra vascular); its location is in the arteries and arterial capillaries, the veins and venous capillaries, and in all the cellular structure of the parts; its concomitants are angry redness, great heat, tense swelling, organizable effusion, sharp, severe, lancinating, and paroxysmal pain, excessive sensibility to touch, and marked complication of increased, diminished, and altered functional action; and its treatment is removal of cause, cooling applications constant and persistent, warm applications stimulating less than irritating, together with astringents, anodynes, and sorbefacient medication, and the observance in connection with these of the general directions, already given in the treatment of congestion, as to diet, rest, position, etc.

## EFFUSION.

Before proceeding with the consideration of that which occurs when resolution has become impossible, it is necessary that I should offer a few remarks in regard to that result which has already been frequently noticed as effusion. This term is employed to designate the filtration of a fluid through the cellular structure which is found between the ramifying nerves and vessels. This fluid, when concomitant with congestion, is considered to be simply "watery," producing an enlargement or swelling of the parts from the presence outside of the capillary arrangement of the more soluble constituents of the blood in the effused water of the blood. This is considered non-organizable, and is most rapidly absorbed upon the removal of its exciting cause. As irritation continues, however, the characteristics of this fluid become changed: its consistency is more dense, it becomes organizable, and in its midst are found what are called "exudation corpuscles." Upon the authority of Cohnheim, these are now stated to be the white corpuscles of the blood, which at a certain period of altered vascular action commence the protrusion of a portion of their disks through the mouths or orifices in the sides of the capillaries, and are thus gradually passed outside of these minute vessels into the cellular structure. It is in this effused fluid (coagulable lymph) that, under favorable circumstances, organization commences to take place; it is by means of this that wounds are healed and reparations of removed or broken down tissues are effected, and it seems that the character of the reparation is dependent upon the medium through which the effusion finally passes,—coagulable lymph, exuding from periosteum, producing bone; effusions from soft tissues producing similar structures; effusions from superficial surfaces producing skin or mucous membrane, etc.; while, as I have said, all inflammatory effusions possess this capability of organization in variable degree, some being unduly or more than healthfully organizable, and others only permitting the fabrication of the lowest order of structure.

### SUPPURATION.

When, from degree of intensity and sufficient length of duration of irritation, we have resulting that amount of deviation from normal nutrition which precludes the maintenance of vitality in any portion of living material, death must ensue. A series of changes in signs and symptoms are now noticeable, which are studied under the head of suppuration, or pus formation.

*Review.*—If a thorn is introduced into healthy tissue, pain is felt as a consequence of impingement upon terminal filaments of sensory nerves. After the moment of wounding, undue sensation may pass entirely away for a time; but, as the result of injury, repair is necessary, and in response to this intelligence, material for this purpose (blood) is sent to the place required through the agency of irritability. This flow we have studied as "determination."

The original cause of irritation still being present, we have found that increased deviation from health takes place, which we have studied as "congestion."

The original cause of irritation still being present, we have noticed that, in response to extraordinary demands, excessive exertion has resulted in that intensified complication which we have studied as "inflammation." And as yet all has been unavailing for relief. The first great feature of remedial *treatment*, which I have constantly endeavored to keep prominently in view, viz., *the removal of the cause*, is now formally recognized by vitality, and death is used as the instrumentality for the accomplishment of this purpose. The parts around the original centre of irritation have gradually sympathized (suffered with) in the existing trouble, until the circle of inflammation has for its surrounding the circle of congestion, and that in turn its circling of determination, and that in turn its boundary of inappreciable irritation, beyond all which normal nutrition is holding its usual sway. But it must be recognized that there is a limit to the power of endurance, and that material cannot be vitalized excepting under certain conditions. These conditions are at length interfered with so seriously that an atom dies. In the ordinary routine of health we recognize the constant birth and death of atoms as the processes of physiological integration and disintegration take place; but when an atom dies as the result of excessive irritation, it seems that a course is marked out for its removal very different from ordinary excretion. With such atomic death we have that decomposition, as a sequence, which eventuates in suppuration, or pus formation, and thus a microscopic abscess is produced. The decomposed atom in turn becomes an irritant, and thus adds increased power for the final consummation of the expelling process now progressing. At this point I wish to refer to the so-called "pyogenic membrane," merely to state that there is no such thing. Nothing of a membranous character exists when inflammation results in suppuration, unless the membranous structure was there before, as in the case of dental abscess, when pus is found sacculated between the periodontium and root of the tooth; but pus is formed from the point or points of death by disintegration of tissues and coagulable lymph, together with such blood as, under certain circumstances (rupture of vessels), may become mixed with it. As tissue after tissue succumbs in the order of its resisting power, so the volume of pus aggregates, the molecular motion of a portion of the contents of the exuded white corpuscles of the blood (exudation corpuscles) ceases, and with the subsequent slight enlargement of these corpuscles, possibly due to the gaseous products of the decomposition of their contents, we have the "pus corpuscle," in connection with which we have had so many hundreds of pages of ingenious pathological, physiological, and chemical theorizing.

(To be continued.)

# NECROSIS AND EXFOLIATION OF THE ALVEOLI AND A PART OF THE LOWER JAW-BONE, FROM THE EFFECTS OF POISONING BY THE FUMES OF BRASS.

BY ABR. ROBERTSON, D.D.S., M.D., GEORGETOWN, MASS.

*Case.*—In 1865, my friend, J. C. Hupp, M.D., called at my office, in Wheeling, and asked me to go with him and see a Mr. T., in consultation. On our way he gave me a sketch of the history of the case, in effect as follows: Mr. T., he said, was a man about thirty-eight years old, an industrious mechanic; his health had generally been good all his life, till within about two months past. At that time, one side of his face began to swell, and continued to swell badly. In its early stage, he had met two or three physicians and asked what they thought caused it. One said, "Well, you have got a 'right bad' gum boil." The opinions of others were about as definite, they having been formed, no doubt, from the external appearance of the face, and a swelled face certainly does sometimes indicate trouble with the teeth, but not always. *Mumps* sometimes causes a swelling of one or of both sides of the face. At the time of my being called, the man had been confined for six weeks; most of the time without medical advice. Dr H., from my present recollection, had been in attendance about one week. Dr. H. told me also, that then, as also when he was first called, there was extensive swelling, and also several small sinuses along the base of the gums of the lower jaw of that side of the face, through which, on slight pressure upon the cheek, a small quantity of pinkish-colored sanious pus would be discharged, and that the teeth in the lower jaw of that side were very loose. My opinion was wanted, especially, as to whether the teeth were, or were not, the cause of the disease.

On arriving at the house of our patient, I found, as had been described to me, the entire right side of his face, or at least all that part of it below the zygomatic arch and the lower margin of the orbit, badly swelled, and on placing my hand upon it, the impression was as if the skin were placed upon a bone or some other hard substance, without any intervening integument. His teeth were an entire set, all of them sound; but those in the lower jaw, from the cuspidatus to the dens sapientiæ, both included, were very loose, as if he had but very lately suffered from a severe mercurial ptyalism. There were several of the little sinuses before spoken of,—three or four at least. My first impression, on but an imperfect examination, amounted to a conviction that it was a case of some kind of poisoning. At that time I had not seen, nor indeed have I since seen, a case of the "match-makers' disease;" but this case so perfectly resembled a description of it that I had read, that my first question to him was, "Have you been working in phosphorus?" He said he had not. I then made a more thorough examination. By passing a probe into the little sinuses, I found the surface of the bone slightly rough for a little way around each of them, showing that the periosteum had already been removed to a small extent; but there were no orifices or breaks in the bone, as there must have been if there had been alveolar, or as I think it would be called much more properly, dental abscess.

This further examination confirmed my opinion that it was a case of poisoning.

On inquiry, I found that the patient was by trade a brass-founder, and that he had worked at it very steadily for many years; and as I could trace no other cause of poisoning, I concluded it must have been produced by the fumes of zinc which are so abundantly thrown off in melting it with copper, to make the alloy called brass. And so I gave my opinion.

I told the patient that necrosis had already commenced, but how far it would extend could not then be told; that exfoliation must also occur, but how long that would require I could not tell. It might occur in a few weeks, or it might require months; that he could not be well till then.

I advised my medical friend to inject the sinuses, daily, with tincture of iodine. He was then taking, internally, iodide of potassium. The patient, notwithstanding my opinion as well as that of his physician, could not divest himself of the idea that the lesion was in the teeth, and wished me to extract them. This I refused to do, assuring him that it could be of no service, and that it would be, at the least, a permanent deformity. My advice was adopted.

In a week or a little more after my visit, he called upon me at my office. The swelling and induration had greatly subsided, and he was feeling better. He was very anxious that I should extract one of his teeth, as an *experiment.*

The tooth in question was the cuspidatus, and as it stood entirely outside the arch, it was therefore a slight deformity. I consented to gratify him, and took it out, protesting, at the same time, that its removal could do him no good. But, as the tooth was misplaced, it could be of no service to him, and really was a slight disfigurement; my conscience was not seriously disturbed by the act.

About this time he returned to his brass-foundry. I did not see him again for a month or more. Then he returned, and said he thought that a *small piece* of that dead bone was loose, and wished me to look at it. On examination, I found that a *large* piece of it was loose; after somewhat enlarging the wound made by extracting the tooth,—it had shown no disposition to heal,—I carefully seized the end of the exposed bone with my forceps—a straight tooth forceps—and by gentle wriggling and pulling, I removed the entire sequestrum in one piece. This was comprised of the outer or *buccal* half of all the alveoli of that side of the lower jaw, from the cuspidatus to the dens sapientiæ. The cuspidatus, standing out of the arch, its entire alveolus was included. It also included a plate from the surface of the jaw-bone, from the starting-point described to a little beyond the dens sapientiæ, and about the thickness of outer walls of the alveoli. It extended a part of the way to the lower margin of the jaw-bone. It varied in width from about three-quarters of an inch to one inch and a half. In length it was about three inches and a half. After the removal of the sequestrum it healed favorably.

This is, in fact, the only case of the kind I have seen; nor have I seen a report of any such case; but in a conversation with Prof. Fordyce Barker, of New York, he told me that some one had reported a very similar case which he attributed to the same cause; but in what medical journal, or by whom the case was reported, I have now forgotten, but am distinctly impressed that it was a man of eminence in the medical profession.

My friend, W. J. Bates, M.D., of Wheeling, told me that he had a patient, a brass-founder, who, after pouring, was always subject to rigors.

## DOCTOR.

BY J. S. LATIMER, D.D.S., NEW YORK.

Among the "Hints and Queries," in the May number of the Dental Cosmos, is a paragraph running in this wise: "Can a dental practitioner honestly appropriate the title of 'Doctor'? If so, may not the lawyer, the divine, and the physician, just as honestly assume the title?"

To many minds the proposition, or the interrogatory rather, would seem to contain its own answer, and yet there are those in our profession who have assumed the title, and who presume to defend the assumption. It is time that this matter should be thoroughly and dispassionately discussed, now that we claim to be numbered among the learned professions, and that we should get out of the very anomalous condition into which we drifted before the days of enlightenment we now enjoy.

Only some forty years ago dentists kept their laboratories and offices exclusively to themselves, locking up their knowledge from their co-laborers, and making dentistry a mere handicraft, which had as little to do with medicine (of which it is now an acknowledged specialty) as has the manufacture of crutches or wooden legs.

Of necessity quackery was rampant, and this state of things was not bettered by the profound ignorance of the people upon whom they practiced. Whether at first dentists *assumed* the title of doctor, or whether the ignorant masses accorded it to them, history does not inform us; for that was in the days of men's ignorance, when things might be winked at which would hardly be allowable in these days of better enlightenment.

According to "Appleton's Encyclopedia," "Doctor (from Latin *doceo,* to teach) signifies a person who has taken all the degrees of a faculty, and is empowered to teach and practice.

"It is bestowed by universities and colleges as an honorary distinction. The doctorate, and the degrees which conduct to it, were first instituted early in the twelfth century. . . . The first doctors were only of law and theology; medicine was afterward added. . . . In the universities of Oxford and Cambridge, and in most of the European universities, a student who is to receive the degree of Doctor has to prepare one or more theses, which, in Germany, are called the inaugural theses. In the United States the title is conferred upon those of eminent learning or ability in their profession, without demanding from them any learned exercise in return, excepting in the medicinal profession, where it is bestowed at the end of a course of study. . . . The title of Doctor of the Law existed among the ancient Jews."

Webster's Unabridged defines as follows: "Doctor, *n.* (L , from *doceo*, to teach).

"1. A teacher.

"There stood up one in the council, a Pharisee, named Gamaliel, a doctor of the law.—Acts v.

"2. One who has passed all the degrees of a faculty, and is empowered to practice and teach it; as, a doctor in divinity, in physic, in law; or, according to modern usage, a person who has received the highest degree in a faculty. The degree of *Doctor* is conferred by universities and colleges as an honorary mark of literary distinction. It is also conferred on physicians as a professional degree.

"3. A learned man; a man skilled in a profession; a man of erudition.

"4. A physician; one whose occupation is to cure diseases.

"5. The title *doctor* is given to certain fathers of the church whose opinions are received as authorities, and in the Greek Church it is given to a particular officer who interprets the Scriptures."

It is evident that we have to do only with the second definition, which makes the title *doctor*, applied to an individual, signify that the person so designated has received the highest degree of a faculty, either as an honorary distinction, or that he has been duly examined by a faculty, and has received their certificate of qualification in the form of a diploma.

At this day, when the United States have some nine schools teaching dental science and art, and granting the degree of Doctor, there is no excuse for the assumption of the title.

By a recent act of our legislature, dentists in the city of New York are henceforth to enjoy with physicians immunity from jury service. The Commissioner of Jurors has decided that dentists claiming exemption under the act must exhibit their diplomas, as evidence of their being dentists within the meaning of the act.

Heretofore New York City has been under a special law, and while in the State at large the diploma has exempted dentists, in this city jury service was a burdensome tax. Now we can enjoy equal immunity with our country friends.

It may be, this will increase the value of the diploma. If so, I welcome it as one other incentive to a better qualification for the practice of our beneficent profession.

But some one objects, May not there be dentists practicing without diplomas every way superior to others who hold the certificates of the schools? I answer, Yes; but this has no bearing upon the diploma question. The degree is not the qualification, but merely the legal recognition of it; and the man, however learned and skillful, who has never received such recognition and certificate, falsifies when he assumes a title which necessarily implies the legal recognition. All honor to the men who, without the advantages of schools, societies, journals, and other helps enjoyed by their younger brethren, have attained to skill and honorable positions by extraordinary ability and effort; but neither we nor they believe it wise to neglect the facilities of to-day because they succeeded without them.

Finally, I appeal to the conscience, the professional pride, the good sense of the dental profession, to frown upon the assumption against which every good man should set himself, and to increase the number of incentives to a better qualification. In this way we may do much to elevate the profession of our choice, and ourselves with it.

# PROCEEDINGS OF DENTAL SOCIETIES.

## ILLINOIS STATE DENTAL SOCIETY.*

This society convened for its eighth annual session at Chicago, May 14th, 1872, with an attendance of over seventy-five active members. The President, Dr. O. Willson, of Aurora, in the chair.

The resignation of Dr. C. Stoddard Smith as secretary of the society was tendered and accepted, and Dr. C. R. E. Koch, of Chicago, appointed to act *pro tem.*

After the usual preliminary business, the President delivered his annual address, giving a very interesting historical and statistical review of the profession in general, and particularly in this State, and making some suggestions for its progress in the future.

The Publishing Committee reported having published and distributed seven hundred and fifty copies of the Transactions of last year, at an expense of two hundred and fifty-nine dollars and seventy cents, and recommended the continuance of this annual publication.

At the afternoon session, the Special Committee on Revision of the

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* These proceedings will be published in full. Those desiring a copy can obtain the same by inclosing fifty cents to the Secretary.

Code of Ethics recommended the adoption of the code of the Chicago Society, with a slight alteration of the last paragraph. This was adopted.

The Executive Committee reported favorably upon the following-named gentlemen for membership, and they were duly elected:

J. A. W. Davis, Mason City; W. H. Mills, Freeport; C. B. Rising, N. E. Babcock, and E. E. House, Rockford; J. B. Bell, A. W. Harlan, and H. T. Towar, Chicago; David Burrell, Freeport; T. L. Gilmer, Waverly; G. J. Hyer, Clinton; H. S. Scofield, Prairie City; E. H. Stewart, Joliet; C. F. Matteson, Macomb; and J. F. Marriner, Ottawa.

Essays and discussions, being next in order, were opened by Dr. E. D. Swain, of Chicago, by the reading of an essay on "Mechanical Dentistry." The essay showed that the mechanical dentist should not simply know how to put this substance and that together by mechanical rules, but that, in order to obtain the true results sought after, he should be versed in chemistry, physiology, and anatomy. It deplores the fact that the leading men of the profession are striving to cut off this branch entirely and leave it to the mere mechanic, and with this they also consign the only truly surgical part of dentistry to the hands of the mechanics. The same hands that pride themselves upon their skill in restoring defective natural teeth must give their attention to the selection and arrangement of the artificial, as they alone can imitate nature as the requirements of each case indicate,—the purely mechanical execution may be left to other hands. Single teeth, plain or gum, can be better adapted, and can be impressed with the stamp of individuality of the artist who sets them,—which cannot be said of blocks. In these, if they possess any artistic merit, it is not due to the man who arranges them on the plate,—and they cannot be arranged to meet the individual requirements. Among the legitimate means at the disposal of the artist to imitate nature are: a certain degree of irregularity, overlapping laterals, etc.; gold fillings, worn canines, necks shaved to represent wasted alveolus, etc. He recommends zinc dies, as contraction of this is probably counterbalanced by expansion of plaster; in some cases swaging on Babbitt's metal after the zinc die is desirable. In taking impressions, we must not confine ourselves to any one method, but follow that which will give best results in the case. Clasps have been a failure, mainly on account of their improper adjustment: it is essential to have a perfect impression of the tooth to be clasped. This can be best obtained by fitting a sheet lead or tin cap over the tooth, splitting this on two sides similar to a percussion-cap, and filling this with plaster. If necessary, in removing, the plaster can be broken with the split in the cap, the cap bent apart, and, after removal, the sections brought together again. After the clasp and plate are shaped, put them both in position in the mouth, and with a spatula lay plaster upon the joint; when this is set, remove, and the relative position is secured. He does not recommend clasps in preference to atmospheric pressure, but believes there are cases where nothing but clasps will answer.

The subject being open for discussion—

Dr. E. H. Kilbourne, of Aurora, agrees with the essayist that clasps are admissible; wears a clasp-plate himself that has been in his mouth since 1852, without injury to the teeth it is clasped to.

Dr. G. O. Howard, of Galena, wished to know of Dr. Swain if he has ever constructed a clasp by winding platina wire around a plaster tooth and flowing gold over this.

Dr. E. D. Swain. That idea is newer than my paper, but I should think it an admirable one.

Dr. J. N. Crouse hoped that those especially versed upon this subject would speak freely. For one, he was glad the rubber company had again gained their case, as the license fee may act as a check upon some whom their laziness would otherwise encourage to use rubber, but who now serve their patrons much better.

Dr. S. L. Edwards, of Peoria, thinks the action of this society several years ago, declaring rubber an injurious substance and a curse, was rightly taken, and he hoped it would never be retracted. He would be a much better mechanical dentist had it not been for rubber; does not accept Dr. Kilbourne's case as evidence in favor of clasps; does not think they are admissible, as patients will not observe proper cleanliness.

Dr M. W. Sherwood, of Chicago, believes the manufacture of teeth in blocks a great advance toward perfection. Atmospheric pressure-plates can be made for all cases. He has seen whole dentures destroyed, tooth by tooth, by clasp-plates: they are not admissible. Rubber, in place of a curse, is a blessing; it is better adapted as a base for artificial teeth than any other substance. He protests against calling it a curse and a failure. It is superior to gold.

Dr. E. Honsinger, of Chicago. Rubber is a superior substance, as it does not contract like all metallic substances. In swaged plates there is the contraction in the dies to contend with. He has never seen but one cause of injury from rubber plates, and in that case it was owing to imperfect manipulation of the rubber, and remedied by a properly constructed rubber plate. He prefers gold for partial plates; clasps may be safely used in some cases. Clasps are often made of too soft material; alloys his with one-twelfth platinum, and gets a stiff spring; advises cleansing of plate and mouth at night, and removal of the former.

Dr. Sturgiss, of Quincy, does not advocate clasping, but uses that which seems best in the case before him,—plain, if he cannot use gum, teeth, and single teeth when blocks will not answer. Never uses a file between teeth that are to be clasped. Clasps will do some harm invariably, but so will rolling suction-plates. He believes there is only one substance superior to rubber,—gold.

Dr. Swain has had hopes that aluminium would take the place of rubber; but some of his plates had been returned with holes through them and blisters on the surface, which, when opened, showed a clay-like powder within. These plates were bought at the depots. He has purified his metal by remelting with salt or paraffine in closed crucible, and rolled out his own plate,—and this difficulty has been avoided; has made plates of this substance combined with Ingersoll's American platinum: this makes nice work, and free from galvanic action. Some two years ago, a patient became salivated shortly after inserting rubber plate; left it out; patient recovered; substituted metal plate, and a permanent cure was effected.

Dr. Kilbourne said his experience with aluminium was the same as Dr. Swain's,—plates came back full of little holes; hopes this may be overcome. Rubber always keeps the mouth feverish. He had a patient whose general health declined entirely, and who was finally restored by substituting a metallic for a rubber plate. Continuous gum is the best, and next to this a gold plate with rubber attachments.

Dr. C. B. Rising, of Rockford. Idiosyncrasy may make some people especially susceptible to rubber; in these cases we must not use it. Rubber ought not to be generally condemned, because of the idiosyncrasies of some individuals. Where there is one who cannot use it, five hundred can. It is a blessing and a curse: the former, because people who have lost their natural teeth can, if poor, still afford to have substitutes; the latter, because its cheapness encourages the wanton neglect of the natural teeth in many cases. He recently removed the teeth from a rubber plate that had been worn for five or six years with perfect comfort. After heating these teeth he saw minute globules of free mercury around the pins, yet there was not the slightest irritation in the mouth. He does not condemn rubber, but opposes the impositions of the rubber company; thought that celluloid bids fair to supersede rubber. It can be made quite hard by leaving it at a temperature of boiling water, after the flasks have been brought together, for ten or fifteen minutes before cooling finally and opening. He has never had patients complain of taste of camphor, and those who had worn rubber before never knew that another substance was in their mouth.

The President, Dr. Willson, thought this the strongest evidence of the presence of mercury in rubber he had ever heard. His experience with aluminium is like Dr. Swain's. He had a case of a lower partial set in which the edge of the plate ran up on the lingual surface of the incisors. After this plate had been worn about six weeks, he discovered a white line, corresponding with the edge of the plate, running across the enamel of the natural teeth; did not know what this was caused by, as he could not ascribe it to mechanical action; asked of Dr. Rising of what kind of rubber the plate containing mercury was made?

Dr. Rising. Dougherty's rubber.

Dr. Dean, of Pekin, has abandoned use of aluminium; same experience as others.

Dr. S. L. Edwards. Were the aluminium plates swaged or cast?

Dr. Dean. Mine were cast.

Drs. Swaine and Kilbourne. Mine were swaged.

Dr. K. B. Davis. Rubber is a curse to the profession and its patrons. It encourages men to style themselves dentists whose only claim is ability to botch up a set of rubber-work, and who are incompetent to save the natural teeth.

The subject was declared closed.

A letter from Mr. S. R. Bingham, manager for S. S. White, was then read by the President, inviting the society's company for a social hour at their business house on Wednesday or Thursday evening. This invitation was accepted for Wednesday evening. (There was quite a large gathering in response to this invitation, and the host, Mr. Bingham, did his utmost to make it a pleasant affair to all.)

After due consideration, it was agreed to devote the forenoon of to-morrow, beginning at eight o'clock, to clinical operations, to be held at S. S. White's Dental Depot.

The Chair appointed Drs. Sherwood, Crouse, Kilbourne, Cushing, Sturgess, Black, Koch, Honsinger, and Howard to operate at the clinic.

An adjournment until two P.M. to-morrow was then carried.

### SECOND DAY.

After reading of minutes and the transaction of some other miscellaneous business,

Drs. K. B. Johnson, of Janesville; C. C. Chittenden, of Madison; S. L. Judd, of Beloit, Wisconsin; and D. S. Rathbun, of Clinton, Iowa, were elected honorary members.

Drs. M. H. Patten, Lexington; M. T. Hand, Joliet; C. C. Smith, Champaign; and George H. Bills, I. A. Freeman, D. B. Freeman, E. Noyes, and J. F. Thompson, of Chicago, were elected active members.

Dr. G. O. Howard, of Galena, read his essay on "Dental Quacks." In the dental profession the line is not yet drawn as strictly as in the medical, but the time will soon be at hand when a diploma will be just as requisite in the former as in the latter profession. A dental quack is a boaster, an ignorant practitioner, an empiric, and occurs in a variety of forms. There is the self-graduate of a few months' study in a private office, and who bolsters himself up by means of newspaper puffs. This variety is dangerous, as by his ignorance he shakes the public faith in our profession.

Another class is the smiling, smirking hypocrite of advanced years, who always purchases out the interest of his predecessor, who recommends him to his patrons; works for the clergy and physicians at a discount; joins secret societies; advertises largely and liberally, and thus secures a practice.

A third class is that composed of well-educated dentists who have, by prosperity, had their heads turned, and who no longer associate with their fellows, but have the "big head," and plod along in the same old tracks of years ago.

The college graduates are not by any means free from charges of quackery, as several advertisements which he quoted went to prove.

There is only one remedy, and that is to educate the public against these quacks; and the move of the St. Louis Dental Society, in the publication of the *Dental Mirror*, is very commendable in that direction.

The subject being open for discussion,

Dr. Sherwood, of Chicago, said he hated quacks in all shapes and forms, and has spared no time nor patience to educate his patients against them, and shall never cease to do so.

Dr. Kitchen, of Galva, thought it unwise to believe that all men who in their quack advertisements style themselves D.D.S. are really graduates of reputable colleges, as he has known several cases in which that was merely an assumption.

Dr. M. S. Dean, of Chicago, then read his essay on "Sound Practice sound Philosophy," of which the following is a brief synopsis:

Our practice to be successful must be based on sound philosophy,—that is, upon the knowledge of those principles and laws that govern the materials or agents *with* which we operate, and also those *upon* which we operate.

We must understand these, or our practice will be simply imitative or guess-work. Anatomy, physiology, and pathology will be of little avail in practice if we lack the essential principles of this branch of physical science. The properties and laws of the dead matter with which we deal should be understood as well as those of the living. The principles of philosophy run through the whole gamut of our practice, from the material of the mallet to the most obscure disease of the oral cavity.

In the filling of very frangible teeth, where there was danger to be apprehended,—as checking the enamel or splitting the bicuspids,—it was more philosophical to use the heavy leaden mallet than light steel or wooden ones, as the latter had greater *vis viva* in proportion to their momentum. When the tooth was very brittle, cuneiform pluggers should not be used, as the tapering points acted as wedges, and might either check the enamel or split the tooth. The same result might be effected by driving the gold too forcibly into cavities that diminished from their orifices. This evil might result from the use of the heavy mallet, but the lighter would be more *capable* of producing this result.

It was not sound practice to draw the gold over the margins of a cavity with mallet and burnisher. This overlapping gold could not be perfectly adapted to the tooth throughout the entire circumference of the filling, owing to its elasticity. Besides, on the grinding surface of a tooth these thin overlappings would be soon worn off by attrition, leaving the margins ragged. In filling a *large* crown cavity, with surrounding wall unbroken, the central portion should be kept higher than the peripheral, especially as the work approaches completion. If, during the process of filling, the plug maintains a concave surface, the force applied tends to draw the gold away from the margins. These can be made perfect only by the principle of wedging. Gold should not be forced *unwillingly* into any portion of a filling where cohesion is important, nor against the walls of a cavity. The pellet and plug must unite by "first intention," and before the gold has been rolled from place to place, and thus becoming partially condensed or knotted. Large pellets should be *packed* with correspondingly large points, and afterwards *condensed* with sharper ones. The "*pits*" complained of were owing more to the relatively small points used in introducing the gold, and carelessness in condensing, than to the serrations of the instruments used. In condensing the finishing layers of gold the light mallet is the most effective, provided we wish to condense merely the surface; yet, unless the tooth was loose, the heavy mallet was generally preferable, and it was usually less unpleasant to the patient, and would affect the mass of gold more deeply. Is it sound philosophy to use what are called smooth points? It is claimed that fillings made with them are more dense. Although this was a desirable quality, it was not an essential one in attaining the object sought in filling teeth,—their preservation. It was sufficient if the walls of the cavity were absolutely protected, the gold sufficiently consolidated to resist the force of mastication. It was more philosophical not to compact the fillings of very *large cavities* perfectly. In *some respects* a porous filling was better than a perfectly dense one. All gold fillings are porous to some extent, and there was little danger of getting them too compact. Fillings nowadays were failing oftener from the want of care and judgment in preparing the cavities for their reception than from a lack of density. Yet density was not a quality to be ignored, but should not be the chief aim of the operator. Some of the advocates of smooth points claim that the face of the instrument should be "flat and smooth, with sharp edges," and that it is impossible to make the sides of a filling perfect with any other. It cannot be possible to pack gold more accurately against *concave* walls with an instrument having a smooth, flat surface, than with a serrated *convex* one. If the surface of a filling could be kept flat, no points could be better adapted to the purpose of making dense fillings. But this can rarely be done, and when it is not, no points are better adapted to shingle or bridge over the interstices and deceive the operator. It has recently been asserted by a writer who uses the "steel mallet and smooth points," that with these, operations are performed giving no pain to the patient, and with no risk of fracturing the enamel; that the fillings are harder and better adapted to the margins of the cavity. Whether this magic power resides mostly in the steel mallet or the smooth points, or whether they are equally efficacious in producing these *desirable* results and in averting the contrary ones, the writer has neglected to state. Most dentists place a layer or cushion, as it were, of gold between the instrument and the enamel. If this is done, these points would as readily fracture the enamel as if they were finely serrated. If this inference is correct, we are forced to conclude that this charm belongs to the peculiar properties of the steel of which this wonderful mallet is made, and we are warranted in this conclusion by the assurance of the writer that it is *non-vibrating.*

In certain cases the light wooden or steel mallet may be preferable to the heavier leaden one. Their *vis viva* is greater in proportion to their momentum, and, consequently, when the under jaw shrinks from the blow, or the tooth yields in its socket, are more effective. It is claimed by some advocates of smooth points that cavities having thin walls—walls entirely composed of enamel—can be filled more completely and safely with smooth than serrated points. This assumption in favor of the smooth points is not new nor strange, but the *manner* in which this is accomplished is worthy of notice. It is done by utilizing the ductile properties of the metal. By beating the gold under a smooth-faced plugger, it is drawn snugly and perfectly against the walls and margins of the cavity, on the same principle as a cubic slug is made to adjust itself to the sides of a gun-barrel when vigorously rammed down with a steel ramrod. If the enamel were made of steel this might be sound practice, provided our patients were made of steel also. These were not the theories nor the practices of the most skillful and philosophical practitioners who favor the use of smooth points, but of a few who would make themselves prominent as the leaders in this practice. It might be good philosophy to change from one style of instruments to another, and from one *form* of gold to another, occasionally; even if the newly adopted were not of *themselves* as good as the rejected ones. The mind concentrated for a long time upon the operation of filling teeth finds interest and relaxation in this change: the routine of labor is relieved from its monotony.

Success in the treatment of alveolar abscess depends in a great measure upon sound philosophy. The treatment of this disease is generally too often repeated and too long continued. Some treat these cases as though the irritation of the therapeutic agent should be kept up as long as irritation continues. One or two thorough applications of creasote or carbolic acid are usually sufficient. The continued and daily applications afterwards often produce the trouble instead of relieving it. The most difficult cases to treat were those of the lower bicuspids, for the reason that they do not usually find an opening through the alveolus, and because of the greater difficulty of removing all the *dēbris*. Those having a fistulous opening are easily treated and quickly cured, as the irritating particles may be washed out by injections. Hence great care should be exercised when there is no opening, to remove patiently and thoroughly all extraneous matter from the canals of roots before therapeutic remedies are applied, and extreme caution during the operation, to prevent irritating particles from being forced through the foramen. Exceptional cases occur, however, where repeated applications are necessary before the healthy action of the parts are restored. In such, a sufficient interval of time should be allowed between the applications, as otherwise a speedy cure might be prevented.

The universal practice of restoring the contour of the teeth was not sound practice; in many cases it was important to mastication and the articulation of the voice, and also to the beauty of these organs, but the practice was becoming too universal. Many cases were instanced where they must fail, and where fillings having an inclining surface, so that the force of mastication would be in a direction to retain them, were more philosophical.

Prof. Judd, of St. Louis, said he could find but little to disagree upon. He had used the common wood, the light and heavy lead, the steel and the soft-rubber mallet,—the latter sent him by Dr. Howard, of Galena,—but now uses the steel mallet exclusively. At the receipt of Dr. Howard's mallet he was operating upon a sore tooth; had his assistant lay aside the steel and take up this mallet; but the patient at once requested the return of the former, as the pain was much intensified by the latter. Dr. Forbes, of St. Louis, always has had a great preference for the lead mallet, and sent one to him, but he was invariably compelled to resume the steel at the patient's request. Experience rather than philosophy should guide us, as we are not so apt to be led into error by the former as by the latter; our philosophy may often be based upon false premises, and must of course then lead us to false conclusions. Philosophies are not of much account when they do not accord with experience. He believes it safe to say that the mallet that gives the least *vis viva* with the least momentum will give the least pain.

Dr. Crouse could not understand why the steel mallet should be so much favored in St. Louis, when his patients always prefer the lead; believed Dr. Forbes used a lead mallet with a leather cover. This is not a lead mallet. He wants the lead itself to come in contact with the instrument; has now a lead, a steel, and a wood mallet, and in only very rare instances are the two latter preferred; was glad the essayist called attention to the danger of cracking the enamel in use of mallet. This danger is increased by a quick, sharp blow of a light mallet. He finds a great many failures in gold fillings, owing to the overlapping gold at the edges; calls attention to the necessity of trimming down even with the edges. Soft foil will adapt itself better to the walls than cohesive, and he always likes to use soft foil around the edges on that account; believes this a greater consideration than whether our pluggers be of smooth or serrated points; favors serrations even deeper than Varney's; thinks in the treatment of diseased teeth we are not thorough enough; had occasion to treat a tooth which was then under the care of a neighboring practitioner during the temporary absence of this practitioner. Found in it a dressing sealed with sandarac varnish, which the patient said had been changed four or five times that day without giving any relief. Upon the removal of this dressing the pulp was found dead, and the tooth suffering from periostitis; he cleansed the pulp cavity and roots carefully, injected creasote, and relieved the pain; did not close up cavity again for several days. There is no good derived from frequent repetitions of treatment; thoroughness at the first time is the greatest essential; has often spent half a day to get the creasote through the roots of a tooth.

Prof. Morrison, of St. Louis, was among the first to adopt the steel mallet; had used lead before; desired to know the difference in weight between the lead and steel mallets as used by Dr. Crouse.

Dr. Crouse would think them of about the same weight.

Dr. G. V. Black, of Jacksonville, believes there is as much difference in the handling of the mallet as in the mallet itself. His mallet had to be laid by for repairs; substituted one made of brass, filled with tin in place of lead, as tin does not scale off as lead does in using, and fall upon the gold. When this mallet was first used, it produced more pain than the old mallet had, and when this one was again resumed the same difficulty was experienced with it. The explanation lies in the assistant's hand becoming accustomed to a particular instrument. Smooth points are preferable in some localities, and serrations in others. He dislikes to hear teeth spoken of as dead when only the pulp is dead.

Dr. De Crow, of Quincy, coincided with Dr. Black about mallets. In the absence of his regular assistant, who uses the lead mallet, he calls in his wife, who formerly assisted him with a wooden mallet. He always has her use this now, as it is easiest to the patient in her hands.

Dr. M. W. Sherwood, of Chicago, commenced his practice with smooth points; thinks there is but little difference whether smooth points or serrations be used; commenced to use a mallet with Atkinson's pluggers, a hard rubber one changed to a leaden one, which he used up to the day of the great fire! He had occasion to use a mallet before he could obtain one, and used a three-ounce tack-hammer instead with good results.

Dr. Wilson, of Bloomington, thinks the greatest importance lies in fixing the first pellet, and the next in cohesion at first touch. It is useless to try to force a pellet in place if it does not cohere to the preceding one.

Dr. W. W. Allport, of Chicago, commends the thoroughness of the essay; is especially pleased to see the position taken upon the manner of packing the gold, keeping the center higher than the edges. Dr. Dwinelle and others, when crystal gold first came in use, taught that the margins must be kept higher. He believed this to be an error, and spoke of it first some ten years ago, and again at the meeting of the American Dental Association at Cincinnati, and also at the last meeting of this society in this city. This is the first time he has ever heard this manner advocated by any one else publicly. He then illustrated how filling from the edges to the center must endanger the close adaptation of the gold to the walls; said Dr. Black had called attention to the fact that because merely the pulp of a tooth was dead, the tooth itself was not; but he would go further, and say that the dentine may be dead to all intents and purposes, and yet the pulp be alive.

Dr. J. A. Kennicott said he believed that he was the original advocate, as he is the oldest practitioner, of the present method of filling teeth with smooth-pointed pluggers and adhesive foil. The two wise men of the nation, who are now claiming to be the originators of this method, not only got their first ideas from him, but he also furnished them with their first instruments. He had explained and illustrated his method at the session of the American Dental Association at Cincinnati, and also at the meeting of this society, held in this city in 1867, and now thinks it rather rough to find others stealing his thunder and making capital out of his ideas. He had also used instruments that were neither smooth nor serrated points, and which in his peculiar method, for which he claimed originality and marked success, must be hard and highly polished,—not merely worn smooth,—and constructed with undulations or slight elevations upon the impinging surface. These being used with a rotary and oscillating motion, break down and condense the gold, making a more uniformly consolidated and durable filling than can be obtained with serrated points.

Dr. Kilbourne, of Aurora, uses a broken plugger more than any other; considers the granular surface of broken steel better than any artificial serration; uses smooth points and serrations; believes with the essayist that a filling because porous is not objectionable, if the walls and margins are tight; but feared such an assertion might lead the younger members to carelessness.

After the transaction of some other miscellaneous business, a letter from Mr. S. S. White, of Philadelphia, was read, in reference to the formation of a league of dentists to oppose the rubber company.

Upon motion, a committee of five was appointed to take the matter under advisement.

Drs. C. A. Thayer, J. E. Low, B. W. Day, and Issachar Snell, of Chicago, and F. Strycker, of Galena, were elected active members.

Adjourned until nine to-morrow.

## THIRD DAY.

After reading of minutes, the society elected Drs. D. G. Palmer, of McLean, and C. M. Wilkie, of Aurora, active members.

Dr. S. L. Edwards, of Peoria, read an essay on "Our Failures." First, cited the young man who commences practice poorly prepared, who makes blunders ignorantly; extracts a permanent for a deciduous tooth, and when learning from the neglected "Harris" of his error, consoles himself by the fact that the tooth would have to be extracted some time, and he has learned a valuable lesson. Next, a middle-aged man with large practice was referred to, who is so full of business that his system is like the miller, who turns out his grist with particular regard for the toll; who when overrun with work must attend to all calls in person, because there is no neighboring practitioner in whom he has sufficient confidence to recommend a patient to. This man sends his gold plate to the jeweler's for repair, and if a silver plate needs mending, it is sent to the tinner's. The amount of work performed by this man in one day is: extracting 70 teeth; gold fillings, 15; amalgam fillings, 1; cleaning teeth, 1; repairing one gold plate; repairing one silver plate; and inserting two upper sets. And next day, adding shame to remorse, a flaming local in the paper tells how Dr. Goodhue extracted ninety-three teeth, although it was not a good day for toothache. This he says is no fancy sketch, but a faint recollection from recent observation. He held that all impositions practiced upon the public by those within the profession may fairly be imputed to the most worthy, and no man can screen himself by retorting, "Am I my brother's keeper?"

To check the further progress of ignorance in the profession, he proposes that the fundamental law of this society be so amended as to establish the least space of time allowed any member for which to take a student. Dentists should be free from every moral and physical stain, so that every word, act, or thought may prove a constant, pure, and illuminating power. They should place themselves on record with those noble men of the medical profession who deny alcohol a place in the Materia Medica, so that patients may realize what they have a right to expect,—a clear eye, a steady hand, and an unclouded brain.

Dr. Honsinger, in opening the discussion, said he could only find fault with the paper in one respect, and that was its title. "Dental Quacks" seemed to him to be a much more appropriate one. He does not see how the case related can be termed "*our failures*," as we certainly do not plead guilty to such conduct.

Dr. Hurtt, of Peoria. This is no fancy picture. We have at least one member whom this essay pictures, and not in by any means too high colors, although he is not in attendance.

Dr. Honsinger. If there are any members present who know of such a case, they are remiss in their duty if they do not bring it up for discipline.

Dr. Crouse. This is not the proper time. He hoped gentlemen would not introduce business at this time that would undoubtedly be attended to in due season. This case shows us the necessity for selecting better material for our students, as probably there is the root of the evil. We take students into our offices simply because they don't cost much, and are so convenient to collect bills, clean the office, and do all the dirty work, without looking to their qualifications. By following up this selfish course we are making an almshouse of the profession, so that any one who breaks down in medicine, or the other professions, or even in mercantile or mechanical pursuits, seeks refuge with us. We ought to encourage young men of capacity to devote themselves to the study of dentistry; but such a young man must not expect to pay his way while pursuing his studies. Young men entering as students should have at least an academic education. They must have a certain amount of native talent, or else all the training imaginable will never make them dentists. Some men, though illy prepared at first, have by close application become proficient, and perhaps eminent in the profession; but such cases are exceptions, not the rule.

Dr. S. M. Sturgiss, of Quincy, wished that we all had had better early advantages; but does not believe in shutting the door to the poor, or any one who desired to come in, whether from almshouses or anywhere else. The most renowned men of the country have risen from humble positions by dint of a power within them, which neither low birth, poverty, or opposition could subdue, and this fact is the just pride of the American people. If the power to become a shining light dwells within any man, do not attempt to choke it off. Education is a great essential, yet this alone, be it ever so excellent, will not make a good dentist. Leave the door wide open, as ours pretends to be a liberal profession.

Dr. Crouse was far from saying that the doors should be closed to the poor. His idea was that we should not take the poor because of his poverty and his assenting to act as a menial for us; but rather, if we find that he has the right material in him, we should assist him by educating him gratuitously.

Dr. Wilson, of Bloomington. I know of men whose only claim to proficiency in our profession is their dental pedigree, having had a father and grandfather who were dentists.

Dr. Kitchen, of Galva. In receiving students we ought to pay more regard to their moral character. No matter how well qualified a man may be, if he lacks in morality and integrity he will disgrace his profession.

Dr. J. A. Kennicott called the attention of the society to the fact that in Canada the practice of dentistry is regulated by law, and not only has the practitioner to appear before a board of examiners, appointed and paid by the government, before he is allowed to practice, but a candidate for studentship has also to appear before this board before he is permitted to be indentured. He thinks this is a wholesome example to us, and we ought to profit by it.

Dr. Sherwood. We should in all cases make inquiry into the moral antecedents of students before admitting them to our offices.

President Willson. This is a question upon which professional gentlemen entertain widely differing opinion. That the dentist should be thoroughly educated for his work all agree; the controversy lies mainly in the how and when. If the soldier be at the front in season for the impending battle, few are inclined to ask the way of his coming or how long it took him. A glance only is necessary to mark the difference in men's rapidity of acquirement. No obstacles or trammels should be thrown in the pathway of scientific research or any laudable enterprise; yet safeguards that shall certainly insure excellent qualifications, though they may prove a stumbling-block to some, are invaluable. A few days ago he had an application by an M.D. in full practice, who "counts" that in his locality, there being no dentist and considerable for one to do, he could find time to extract and fill, if he knew well how, and that a three months' tuition with us would fit him for the demand. He advised him to practice but one profession; suggesting the time necessary for thorough drill mentioned by our ethics. That he should have the opportunity to learn more of our specialty is plain, but to what extent he may practice it, and not be a dentist, is doubtful.

The society then proceeded to the consideration of the next subject, which was opened by an essay by Dr. K. B. Davis, of Petersburg, on "Dental Societies." While he does not detract from the just claims of the dental journals and colleges as elevators of dental science, yet he claims that to the free interchange of mind with mind, at the meetings of dental societies, should be given the honor of exerting a more marked and direct influence. Then follows a statistical statement showing the progress in this direction within the past thirty years.

The clinics at these meetings have lifted the mist and fog of perplexity from many whose pupilage and after-observation was limited, and these reaching a greater number do more good than the colleges. Much as has been done, there is still a great deal left to do. Those who do not attend the meetings, because they cannot afford to do so, must be taught that they cannot afford to stay away; those who are indifferent, because they do not understand the true object of the societies, and others who are so wise that they cannot learn anything, and stay away on that account, must all be brought in; these latter to impart their wisdom to those less gifted. In addition to bringing all dentists within the beneficent range of societies, the essay suggested that the people should be educated, as one more means by which to secure the ultimate success of our profession. Every act done in the great work of dental progress will live as long as the profession survives; every act which tends to the annihilation of error and propagation of truth is a little rock started from the mountain-top, which gathers force and volume on its way downward, and starts others on its way, and which, before the crushing mass reaches the base, bears down all before it.

The rules were then suspended, and Dr. Crouse stated that the society was considerably in debt, and moved an assessment of two dollars upon each member to raise the debt and create a fund for publication of the Transactions of this meeting. Dr. Honsinger amended this by substituting "donation" for "assessment." This prevailed. A collection was taken up, which resulted in the receipt of one hundred and seventy-nine dollars.

A ballot was then taken for next place of meeting, and Rock Island was selected.

Upon motion of Dr. Kilbourne (who stated that he had learned that Dr. Allport had "something new"), Dr. Allport was requested to explain his ideas before the society, and two o'clock this P.M. was set apart for the purpose of listening to him.

The committee to whom was referred the letter relative to the formation of a dental league to oppose the rubber company, recommended the appointment of a committee to correspond with Mr. S. S. White, of Philadelphia, as to the plans for such a league, and that the society pledge itself to co-operate with him in any feasible measures tending to the end proposed. This recommendation was adopted, and the chair appointed Drs. Cushing, Honsinger, and Allport such committee.

In the afternoon Dr. T. W. Brophy, of Chicago, was elected to active membership.

Discussion was then resumed.

Dr. Honsinger said he hoped the power for the individual improvement of dentists exerted by societies would continue until every member of the profession belonged to at least one society. Coming in contact with so many other members, even if only once a year, will not only make better dentists of us, but, in some cases, will even elevate our social and moral conditions. It has a tendency to make us more cordial to one another, and destroy the exclusiveness of former years, and it begets a true desire for the advancement of our science.

(To be continued.)

## FIRST JUDICIAL DISTRICT DENTAL SOCIETY OF NEW YORK.

The following paper was read before the First Judicial District Dental Society of New York, at Coleman House, April 2d, 1872, by W. H. Atkinson, M.D.

### Why do you use Creasote?

When this question is first presented to one, he may think an easy task is required. But as soon as he tries to think out the "reasons" for his adopting and continuing the use of the article, he will learn, may be for the first time, that he was employing it without any but empirical reasons,—such as, "Others use it, and I use it;" or, "So-and-so commended it, and I adopted it," etc.

Let me say, I formerly used it from conviction that it fulfilled more indications for good than any other known remedy. Even to this day, I cannot aver that the application I make of it or its successor (in my practice), thymol, is a thoroughly scientific use of the agent or agents. Although many pretty names are employed to "explain" or "portray the action" of the remedies, yet there is not a certitude as to the exact play of affinities that make these valuable agents useful to us.

The first recollection of the use of creasote runs back to 1835 or 1836, when it was first brought to my notice. A dram bottle then cost one dollar, and Dr. Hiram Boyd, of Cussawago, Crawford County, Pennsylvania, employed it in aqueous solution for dyspepsia, flatulence, etc. My present impression is that he read an account of it in some journal, from which he was induced to get and use the article. How, or why, I began to use it for toothache and in surgery, is not now clearly before my mind.

I am confident that it was introduced into practice from hearsay, and empirically perpetuated for a long while before the Why? had excited any considerable concern. The affinity subsisting between creasote and albuminoid structures, which entitles it to be called escharotic, connected with more occult affinities less clearly seen, such as are denominated "irritant," "narcotic," "styptic," "antiseptic," etc., constitute well-founded "reasons" for using it. And all who are aware of these may make intelligent and scientific employment of this agent, to their great credit and the positive benefit of those on whom they make such use of creasote.

When endeavoring to overcome the prejudice of some patients, especially those inclining to Hahnemannian modes of medication, I have been in the habit of telling them that the desire to have a friend at court in every case of caries was the more constant and potent reason for saturating each cavity with the creasote before filling it, either with a temporary dressing or filling, or permanently filling it, with the strong assurance of success.

More than a full half of our scientific reasons for using the remedies we are in constant use of, even when they are known to us, have been attained through empirically applying them and observing their actions, which study has revealed to us the real reasons for thus resorting to them. The great bulk of operators and administrators of remedies mass their work and means and methods, because the obvious results take hold on their minds in the *mass* rather than in *detail.*

If we desire to recognize the reasons for selecting and administering of agents, so as to have a tolerably correct prevision of the effects produced and the results most likely to be attained, we must address ourselves to minute studies of the bodies that specifically elaborate function in *con*structive and *de*structive assimilation.

The action of creasote is always a play of affinities between it as a proximate principle and the proximate principles that enter into pabulum, plasm, mucus, and in fact the whole range of albuminoid substance out of which normal and abnormal tissue is built and nourished.

The truth is, the different effects of creasote, as "irritant," "narcotic," "styptic," "antiseptic," etc., down to "escharotic," are simply the display of different degrees of affinity and saturation of these "proximates." It requires a deeper and more definite knowledge of the laws and processes of metamorphosis, morphology, physiology, and chemistry than I possess, to assign and point out the actual *changes* that occur when creasote is brought within the sphere of influence of the tissues and the element of tissues, which changes constitute the basis of the "reasons" for "using creasote"! Hence I have to resort to the same method of which I complain in others, or remain silent,—that is, give macroscopic and vague reasons and views, rather than the microscopic conspectus that alone reveals the basic reasons in demonstrative shape and presence.

When creasote enters fully into combination with an element or a tissue, it kills it as such by changing it into another body, which has been variously called an "ate" or an "ole," as it hath pleased the investigator to regard the creasote as "acid" or "oil," instanced in "carbol*ate*," "cressyl-*ate*," and "phen-*ole*," of albumen.

Whether these be real "proximates" of tolerably constant constituency or not, is of less immediate utility to us as dentists to know, than to realize that they actually present themselves in the degrees already noted as escharotic, etc. The first quite killing; the second, killing part and preserving part, and so on in diminishing degree of power, until the last effect only accelerates the normal functional metamorphosis of the tissue elements to which it is applied.

## Discussion.

Dr. Bronson. How does it produce a narcotic effect?

Dr. Atkinson. I cannot answer that. I only know it has a soothing action. In large doses it is rapidly fatal, and it has been said to be through its narcotic effect; for in examination after death there have been found no lesions.

Dr. J. S. Latimer. Dr. Atkinson's statement, "Everything acts by affinity," is perhaps a little broader than he intended. If we add or abstract heat, we get an action that can hardly be said to be produced by chemical affinity. If we apply capsicum we get an action that cannot be called chemical. It seems to me that we bring to the part through the means of motion an increased nervous force. May not this have something to do with the action of creasote? In one case we have death; used in a lesser degree, stimulation only. Perhaps capsicum would have this effect, and without combination of any kind.

Dr. Atkinson. I have confessed my ignorance of the action in itself, but I claim to know its different phases. An agent may be either a stimulant or a sedative, the action being only one of degree. I know of no agent that is primarily a direct stimulant upon the vascular system, except cold.

Dr. Latimer. Do you admit the circulation of a nervous fluid?

Dr. Atkinson. Yes; and all secretory action is neural action. Narcotism is setting at rest the neural current.

Dr. Fitch. We cannot trace these actions: we only see the result. Who knows anything about miasmatic poison? Who has ever seen it, weighed it, caught it? (Dr. Francis thought many had caught it.) It is all theory and guess-work. We are out on the sea, and we may as well acknowledge it, as physicians, and even professors in our colleges, are obliged to do.

Dr. Latimer. Its antiseptic effect is due to its chemical affinity. Nothing will remove the odor of an old tooth so effectually as creasote. Whether it does it by outstinking it, I can't say. This antiseptic property is of great importance and of great practical value in the treatment of these old teeth.

Dr. Jarvis. I am sorry after so many years' practice we are compelled to say we are farther out at sea—that we know nothing whatever of its real action. I don't believe it. I have used it for twenty-three years, and I am not prepared to confess that I don't know how it acts. When used in the pulp canal, do we not know that we have fumigated the ship and placed it beyond danger? If there is any agent of which we know much, it is creasote. There is but little pure creasote in the market.

Dr. Gage. I saw two cases of molars, the pulp canals of which had been filled with cotton and creasote (one of them of twelve years' standing), and the "scent of the rose hung round it still!"

At the regular clinic, May 7th, Dr. O. A. Jarvis treated of "Proximate Decay," aiming to demonstrate the following propositions by numerous examples and illustrations:

1. That the point of contact is self-cleansing.
2. That decay does not commence at the point of contact.
3. That the acute angle is the point of danger.
4. That the point of decay is most distant, difficult, and dangerous to approach from the crown.

Proximate decay, so called, is very common; the most difficult to remedy; and it is gratifying that there is a general desire to prevent it. Judging, however, from the later communications on the subject, it would seem as if its importance was lost in misunderstanding of intentions and terms. *

Let us take our glasses and look at facts as presented in these teeth and jaws. There is no occasion or excuse for combat or contention, and I disclaim all desire or design in that direction.

Here are specimens of young teeth exhibiting no marked characteristics of present interest to us, except the all-important fact that the proximate surface is, in some instances, quite rough; in others, uneven; in others still, concave; and in the best, showing Nasmyth's membrane with its beautiful folds. There is sufficient difference in these conditions to warrant the distinct use of these terms. None of them have a smooth, polished surface, and we have reason to believe that this is the general condition of the teeth. The impression made upon

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* See Dental Cosmos for May.

the mind as soon as we examine these surfaces with the glass is, that they should be *polished.* Let us bear this in mind as we proceed.

Here are specimens a little older, that have been *used* a few years. The teeth are not so immovably set in their sockets but that when there is pressure brought to bear upon them, either laterally or longitudinally, they move to some extent; and hence produce a friction against each other, which keeps the surface clean and polished, as is plainly seen in these specimens. But in the immediate neighborhood of the polished point we find an acute angle, in some cases more or less discolored; in others we find various stages of disintegration and decay.

Now, let us study for a moment this condition of things in relation to the retention and removal of fluids or more solid matter, as illustrated by filling and emptying a small-mouth vial, or removing mucus with the saliva-pump. The principle of capillary attraction applies here in full force. Now, take this fact and condition in connection with the first one we have just observed, namely, the unpolished surface, and we are convinced that we have not only found our enemy and look upon his lair, but we seem to know without doubt how to dislodge him; namely, by polishing those surfaces and making an obtuse angle where it was before acute. We also see that it can be done without much difficulty by the use of these files, preceded in some close cases by cutting instruments, and then followed by the tape, etc. Here we have a number of specimens in the jaw, and otherwise illustrating the polishing and the obtuse angle.

Our fourth proposition remains to be considered. Take any of these specimens and measure from the grinding surface, and also from the buccal surface, to the point of decay. The distance, the amount of material, and the character and condition of the material, are all in favor of access from the buccal surface for the prevention of decay by polishing, or the removal of incipient decay; and it would appear, while looking at these teeth and jaws, divested of the soft tissues, to be best to enter from the same direction for filling, unless the decay has made considerable progress toward the grinding surface. This first molar in this upper jaw presents a carious cavity of very fair dimensions. We readily perceive that access is easier from the buccal surface, and gives a fair view of all parts of the cavity. The only disfiguration consists in a certain extent of gold surface instead of tooth surface. The gum can by no possible means be more in the way than when working from the crown, for the simple reason that the cervical portion must receive as much attention in the one case as the other. In this manner we can leave the surfaces self-cleansing no farther than it will be accomplished by leaving them polished, and an obtuse angle in place of an acute angle, which may be secured upon three sides of the point of contact. Self-cleansing surfaces should always be secured when it can be done safely and wisely. The advantages and disadvantages of cutting down from the grinding surface have been discussed elsewhere.

I will only call attention to the improbability of this soft, porous septum keeping the teeth apart. We may, you will perceive, as well depend upon the gum itself to do so. Likewise, we here see how sure the coming together of the teeth will choke off the circulation, the nourishing vessels, causing absorption, etc.

Let us, finally, by an examination of these jaws and teeth, determine how we can "transfer" the point of bearing beyond the point of attack of decay, or in fact shift the point of bearing in any manner.

Hold them up to the light,—look carefully,—and we perceive that the anatomy of none of these specimens is favorable for that operation: they must evidently be "stuck in plaster."

S. G. Perry, *Secretary.*

## SEVENTH DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

At the fourth annual meeting of the above society the following were elected officers for the ensuing year:

*President.*—A. G. Coleman, Canandaigua.
*Vice-President.*—J. A. Chase, Avon.
*Secretary.*—J. Edward Line, Rochester.
*Treasurer.*—F. E. Howard, Geneseo.

The subjects presented and discussed at this meeting were "Contour Fillings," "Fraternal Intercourse and Sociability among Dentists," and "Best Method of Preparing Gold for Filling."

This society meets regularly on the first Tuesday in June.

J. Edward Line, *Secretary.*

## ALABAMA DENTAL ASSOCIATION.

The Alabama Dental Association will meet in Montgomery, Ala., the third Wednesday in August, at which place and time those of the profession who feel interested are invited; and it is hoped those throughout the State will attend, as it is expected by the members to be the most interesting meeting yet held.

A. C. Walker, D.D.S.

# CLINICAL REPORTS.

## UNIVERSITY OF PENNSYLVANIA.

SERVICE OF JAMES E. GARRETSON, M.D.,
LECTURER ON SURGICAL DISEASES OF THE MOUTH.

REPORTED BY DE FOREST WILLARD, M.D.

### ANTRAL ABSCESS.

THE woman before you is suffering from a swelling upon the right side of her face; the enlargement, as you see, is situated above the incisive fossa, and is about the size of an English walnut. The tumor is of firm consistence, yet yields to pressure, and imparts a crackling sensation to the hand. The skin is but slightly discolored, and the accompanying pain is inconsiderable. The duration of the condition is but six weeks, and it was preceded by toothache. Now remember what I have told you in regard to the diagnosis of tumors. Is this homologous or heterologous? Has it an anatomical explanation or has it not? In situation, you will see at first glance that it is directly over that cavity or sinus in the superior maxillary bone known as the antrum of Highmore. Could you, then, help asking yourself as the first question, Is not this tumor associated with that cavity in some way? The inference would certainly be strongly in favor of such conclusion; but no decision should be positively made until all the history of the case has been fully considered. If you will recall the anatomy of this sinus, and remember the exceedingly small orifice by which it communicates with the middle nasal meatus, you will readily perceive how any thickening or congestion of the mucous membrane surrounding this orifice might cause complete closure of the aperture and consequent confinement of any morbid products. Premising, then, that the tumor is connected with this cavity, can we explain its cause? I am sure I speak the truth when I say that a very large majority of cases of trouble in this antrum are lesions secondary to diseases of the teeth. The lining membrane of this sinus is undoubtedly subject to the diseases common to other mucous membranes, and the cavity may be attacked by any of the heterologous tumors; but I wish to impress the idea upon you that the source of offense is ordinarily dental in its origin. This will be readily appreciable when you remember that the palatine fangs of the first and second molar teeth are always in close proximity to, if they do not actually perforate, the floor of the cavity. Roots which perforate are covered simply by antral mucous membrane, and when affected by periodontitis would readily arouse an inflammation in that membrane, which, extending, must quickly cause turgescence around the margin of the nasal opening and consequent obstruction. Excessive mucous secretion would soon degenerate to pus, which, confined, would give us the disease known as "abscess of the antrum." True inflammatory deposit may render the blockade at the point of exit more secure; when, no escape, or but little, being afforded, for the constantly-forming pus, expansion of the cavity must follow. The walls of the cavity being but thin, one or all may bulge,—the one in my experience yielding most frequently being the floor. In some cases, however, the facial wall above the canine fossa expands and attenuates, as seen in the case before us; in others the nasal cavity is encroached upon; while in others the orbital plate yields; and, in a few recorded cases, the eye has even been protruded from its socket by the steadily-increasing pressure. This pressure may even cause amaurosis or other visual defects by encroaching upon the optic nerve. Such cases are mentioned in Wièderholte Entzündungen des Antrum Highmori und Amaurose, Wochenscrift, Märs, 1851; Salter. Med.-Chir. Trans., vol. xlv.; and in a few other instances.

Another associate lesion connected with an antral accumulation might be violent neuralgia of the fifth pair, from pressure upon the posterior dental nerves as they lie in their canal in the posterior wall. Occasionally, also, small filaments of nerves cross through the antrum; in which case they would be almost certain to suffer harm.

Such is a sketch of some of the prominent features of this malady.

Now, has this woman any dental disease? I examine her mouth, and find that the first molar tooth has been removed; but, if I am not mistaken in appearance, the second is periosteally diseased. Yes, it responds to the tap of a steel instrument, and is undoubtedly dead. Had it manifested no tenderness, I should have examined it with reflected sunlight from a hand-mirror, and should have easily detected its opacity—a condition indicating loss of vital power.

Here, then, lies the cause. What could be more reasonable than to remove this tooth? I accordingly extract it; no pus flows, however. Well, the fang may not have completely perforated the floor, or the opening may be so small that the pus cannot escape, or flocculi may obstruct the orifice. I therefore take this small trocar (a large probe would answer as well) and thrust it up into the alveolus of the removed tooth, and now, as we see, the pent-up material in the antrum is poured into the mouth. It is somewhat offensive, yet has not the odor peculiar to dead bone.

Suppose now that I had not discovered any disease in this tooth; then I should have examined all the teeth upon that side, for, as remarked by Otto, it occasionally happens that the fangs of all the teeth from the canine to the dens sapientiæ are in close relation with this antrum. Had any one of them been carious or sensitive, I should have extracted it, and have punctured through the alveolus. Suppose again that I had found the teeth all healthy, but with one or two absent ones; then

I should have said to myself, Now fangs are often broken off in extraction, and may there not be one lodged away under this apparently healthy gum, which fang, being periodontally inflamed, has made the route of exit for its pus into the antrum? Such a case might very well occur; and in fact, as I examine this woman's mouth more closely, I am quite convinced, from the appearance and prominence of the gum, that she has such an old fang in the place of the first molar, which I told you was absent. I cut down upon the bone through the gum, and, sure enough, here is a carious fang totally buried in the soft tissues, yet which, as I now extract it, shows, by its evident connection with the antrum, evidenced by the discharge of pus, that it was one of the primary causes in bringing about this unhappy abscess. The incision for the discovery of such fang is always but a simple affair, and the healing is almost immediate.

In a few rare cases, where no dental association is discoverable, it might be advisable to open the abscess either in the roof of the mouth, where it usually points, or through the facial antral wall, inside the mouth. In the majority of cases, however, it is best to sacrifice a tooth.

The pus being now evacuated, I thoroughly wash out the cavity with warm water to remove all flakes of pus, etc., and shall complete the treatment by ordering a daily injection of tinct. iodine and capsicum, properly diluted.

With good care, frequent syringing, and these stimulating injections, a speedy cure may be anticipated. The restoration of the expanded bones to their accustomed place is easily accomplished by a firm compress and bandage, or, indeed, it may be left to take care of itself.

To prevent the passage of food into the canal and the too rapid closure of the orifice, it is sometimes necessary to insert a small plug of wood as a stopper.

A double tube would be advantageous, as it would render the syringing and cleansing more thorough and complete.

When the constitution of the patient requires attention, such demand will not bear to be overlooked.

If you follow the treatment laid down, having made your diagnosis correctly in the beginning, you will generally cure your patients quickly.

An antral abscess, pointing through the palatal plate of the superior maxilla, has, as a diagnostic sign, that its internal boundary is apt to be quite abrupt and does not pass the line midway to the mesial division.

When the nasal orifice is small, but not entirely occluded, a drop of pus will often be seen in the middle meatus; and if the patient's head be directed to the side opposite the disease a considerable quantity may be poured out, thus aiding materially in the diagnosis.

Dropsy of the antrum consists of an accumulation within the cavity of a glairy mucus, or a thin brownish fluid containing cholesterine. This liquid is often only an excess of that normally secreted, changed sometimes from long retention or from a diseased state of the lining mucous membrane itself. In some, and I may say many, cases, however, this liquid partakes more of a serous character.

When the accumulation in a dropsical antrum is large, the walls of the cavity may be bulged in any direction, so as to encroach upon the surrounding parts, and the symptoms frequently resemble the ordinary abscess so closely that only the attendant history can lead to an accurate diagnosis. The absence of dead teeth or fangs, and of all previous or present inflammatory symptoms, will help to lead you in the right course, but the exploring trocar is the best of all, the perforation being made through the alveolus of a tooth, or through the anterior wall just above the incisive fossa.

In the treatment of such cystic disease a somewhat similar method is employed as with the ordinary abscess,—*i.e.* the pus is evacuated either by extraction of a tooth, or by entering the cavity through the anterior wall, the gum being dissected up if necessary. Injections and pressure are usually required.

The antrum is also frequently the seat of both malignant and benign solid tumors, which growths may distend the walls in the direction of either nasal, orbital, or pharyngeal cavities. The diagnosis of these during the early stage is often difficult, requiring, in fact, that the whole history and the progress of the disease shall be carefully taken into account. We have no illustrations of such tumors to-day, and as without them a clinical lecturer loses his text, we will defer their consideration until a future day, when the rich stores of the dispensary service will no doubt furnish us abundant examples.

[The case progressed most satisfactorily, and was well in three weeks.—De F. W.]

# EDITORIAL.

## SYSTEMIC CONDITIONS INFLUENCING THE SUCCESS OF DENTAL OPERATIONS.

No reader of the dental journals can have failed to notice the opposite results recorded by different operators in the same class of cases and under the same treatment. To many this conflict of testimony is confusing, because of their failure to take into consideration the differing circumstances which doubtless influence the results. Success or failure depends probably far more than is generally imagined upon the state of health and the hygienic conditions by which the patient is surrounded. An exposure to atmospheric variations or to miasmata, an attack of measles or other exanthem, will, by causing a modification in the normal standard of healthy life, create trouble in a "treated tooth," which, if the patient had retained accustomed resisting power, might not perhaps have occasioned pain for years. Excesses of any kind, undue anxieties, depressing emotions or influences from whatever cause,—anything, in short, which lowers the resisting capacity of the organism,—will be as likely to be manifested in periodontitis as in the degeneration of scar tissue, so frequently seen in the breaking out, under such circumstances, of old ulcers, the sloughing of old cicatrices, etc.

In fact, local lesions are in great part the manifestations of systemic disorder, the result of influences acting constitutionally through disturbance of physiological functions.

Thus, while there is unquestionably marked differences of susceptibility to deleterious influences in different individuals, due to original constitution, there is also in the same individual a much less resisting power at some times than at others. A general mal-condition is recognized as unfavorable to the reparative processes in any portion of the organism, and is also accepted as rendering uncertain the safety of any part the vitality of which is below the normal standard. In any abnormal condition of the general system, it must follow that the nutrition of the teeth and adjacent structures is sure to be deficient to a greater or less extent. When, therefore, a tooth has been deprived of its pulp, it retains only a semi-vitality through the peridental membrane; and if systemic degeneration, a lowering of vital force, takes place, the periodontium recognizes the half-dead tooth as an irritant, just as a sick man estimates that as a burden which, when well, he carried almost without being aware of its presence; and the irritation is rapidly followed by the other stages of inflammatory action resulting in alveolar abscess, the local lesion being attributable to systemic derangement; for whatever interferes with the organic forces, upon which the formation and distribution of healthy blood depends, interferes with the nutrition of every molecule of the body.

Thus, we have frequently seen peridental inflammation and abscess follow in one tooth after another, which had not given any discomfort for months or years, the consequence apparently of the removal of the patient to a malarious region. The same result we have repeatedly witnessed in the convalescence from measles, typhoid fever, and other diseases; or accompanying an attack of gout or rheumatism, or associated with pregnancy. Thus, while diathesis modifies essentially the prognosis in the devitalizing or capping of pulps, it is evident that "circumstances alter cases" in this as in so many other human affairs.

Might it not be well, therefore, instead of expressing doubts as to the veracity of a professional brother claiming a large percentage of success in treatment, or, on the other hand, indulging in uncharitable reflections as to his lack of skill if he reports failures, to consider more attentively the modifying elements in each other's practice, which might lead to more charitable estimates?

# PERISCOPE.

Repairing Vulcanite Work.—Where there is sufficient body of rubber to allow a dove-tailed joint being made, as, for instance, in the case of a tooth requiring to be replaced, it may be repaired perfectly without revulcanizing, by using ordinary amalgam in the place of rubber. The joint made by this means is fully as strong, and does not entail the weakening effect of revulcanizing on the whole case. It has also the advantage of enabling the repair to be finished in a very short time.

When a fracture occurs in a thin part of the plate, necessitating an edge-to-edge joint, it may be made perfectly strong by first thoroughly roughing the surface with a very rough file, or a number of shallow cuts with a piercing saw. If this surface is then painted over with a thick solution of Ash's pink rubber in chloroform, and allowed to dry, the surface may be built up to any extent desired, and the joint, if made with reasonable care, will be the strongest part of the plate. I have frequently tried to break joints made in this way, but have never succeeded; and a fracture commenced purposely at the joint will not continue along it.

If the surface, roughened as above, is rubbed over with small pieces of Ash's No. IX. rubber with a tool hot enough to make it very soft, but not to burn it, the new rubber will adhere firmly to the old, and will make a joint when vulcanized which is fully as strong as that made with the chloroform solution. This process has the objection of requiring great care to prevent burning the rubber, and also to get heat sufficient to cause perfect adhesion in every part. It is not always necessary to part a flask in packing rubber for a small repair, as all rubber expands considerably during vulcanizing. If therefore the rubber is cut very small, and packed hot with proper care to prevent air-bubbles or crevices, the expansion of the rubber will be sufficient to compress it thoroughly into every crevice.

When a solution of rubber is used for any purpose, care should be taken to allow time for the solvent to evaporate thoroughly, or the rubber packed over it is liable to be porous and unsound.—*T. Fletcher, Esq., Brit. Jour. of Dental Science.*

Celluloid.—Since the introduction of this material as a base for artificial dentures, there has been a very general disposition to test it, and, as usual with such things, with quite diverse results; there is sufficient cause for this, aside from the nature of the material itself. It is irksome to subject one's self to a tedious course of experimental training, when there is something at hand with which there is entire familiarity, and the desired results can be obtained easily. The difficulties in the use of hard rubber for artificial dentures, which at first were very great, have been so completely overcome that every one now works it as readily as the moulder forms bricks from clay.

Upon the introduction of rubber for dentures, so many and so great were the difficulties attending its manipulation, that years of patient effort and toil were required to overcome them all. Even those best skilled in its use made failures. The success in the use of celluloid is certainly more promising at this period of its use, than was rubber at the same time; and to those who desire to avoid the use of rubber, and must have something for cheap dentures, we would suggest, be patient with celluloid; become familiar with its nature and the proper method of working it. In the construction of artificial dentures there are certain processes and manipulations that are common to all styles; for example, obtaining models, and making a good adaptation of the plate to the model, the selecting, adapting, and arranging the teeth; and in reference to the teeth for celluloid, there seems to be no occasion for gum teeth, either single or in blocks; plain teeth in all cases being the best; as the celluloid is quite adapted in color and in every other respect for the gum restoration, and the adaptation and adjustment of the material to the teeth is more easily secured, and is more perfect.

The teeth are ground to a base plate of wax or gutta-percha, and flasked in the same manner as for rubber.

Directions for using are furnished with the celluloid material that are in the main correct, though in a few particulars it is found better to deviate a little from them. For instance, it is better to raise the heat to about 310° before bringing the flasks together at all; then it will go together, all the previous steps having been made very easily, and without any liability of injuring the model or disarranging the teeth. After the flask is brought together, it is better to let it remain in the oil at 310° for ten or fifteen minutes; this seems to give toughness and a better body, and renders any after-change less liable.—*Editorial, in Dental Register.*

A New Method for Fitting Bands and Clasps to Teeth.—In "regulating cases," having at times found it extremely difficult to *perfectly* fit a band to a tooth which I desired to twist, it occurred to me that the difficulty could be overcome in the manner which I will describe, and which I have since found of great advantage, saving time and patience, and giving a more accurate adaptation than could be obtained by any other method with which I am acquainted.

I take an impression of the tooth, from which I get a plaster model; around this I wind a fine platinum wire, one coil above the other, until a band of sufficient width is formed. Over this, and while yet on the plaster model, flow gold solder, and you will have a perfect fitting band. Attach your catches at whatever points on the band you wish to apply your force, by soldering on a small piece of plate, or in any manner the case may suggest to your mind as the best.

Clasps can be perfectly fitted to teeth in this manner, using heavier wire and twenty carat gold for solder, cutting the band so as to clasp the tooth in the proper manner.—*Dr. A. H. Fuller, in Mo. Dental Jour.*

Removing Inferior Molars.—I desire to mention through your journal a method I have of removing inferior molars, when the roots spread gradually from the neck downward so much as not to admit them between the adjacent teeth in extraction. The reader has no-doubt met with cases in which, after breaking the immediate attachment and endeavoring to raise the tooth from the socket, it would wedge as above indicated. By exerting force laterally, there is danger of fracture of the alveolar process more than is warranted, besides making a very unenviable impression upon the patient. Splitting is resorted to by many, but this is severe, especially when a tooth retains much of its integrity, and it is an operation to which the sufferer does not like to submit.

An iron-jawed gentleman presented himself several years ago for the extraction of the first right inferior molar. I pulled away at it, right and left, manfully, broke it loose, but could not remove it in consequence of the difficulty which I have mentioned. I tried the splitting process, but this was abandoned at *his suggestion.*

It then occurred to me to take a small French saw, like that which any dentist has in his laboratory, and saw off one of the roots, which I did, with no pain to the patient except that incident to the previous attempt, and the gratification to us both at its easy removal thereafter.

Since then I have had occasion to resort to this several times, with like success.—*Smith, in Mo. Dental Journal.*

Alveolar Absorption.—This complaint, as recognized in the list of diseases demanding treatment at the hands of the dental surgeon, forms one of no mean limit, evidently choosing as victims those who fully observe proper sanitary rules necessary to their welfare, as well as the more careless. This fact, in addition to the indurate obstinacy so often attending cases, proves to the mind of that operator having a true regard for both profession and patient a painful realization. Through the instrumentality of the presence of this disease, and the want of foresight upon the part of too many dentists, thousands of teeth are thus annually sacrificed which might, by proper therapeutical treatment, prove far more serviceable than the most superior artificial substitute.

But a few days since we were requested to extract an entire lower set of teeth—the whole number free from decay. The only fault found was that the gums bled more or less daily, and a keen sensation was perceptible when the finger-nails or cold fluids came in contact at their necks; also an absorption of the labial margins of the incisors some three lines in depth. Not deeming the case a justifiable one for extraction, of course the request met with a refusal on our part. The patient left our office declaring us of "stupidity stubborned," at the same time adding "she knew where she could get them extracted if we would not do it." It is needless to state her teeth were extracted elsewhere. We have been too often censured on account of our obstinacy in the slaughter of these most valuable accessories when a few of them were minus a part of the osseous or gingival tissue at their labial or buccal margins; but since receiving the degree of our Alma Mater we resolved on one fixed purpose, and this hobby we shall yet continue to ride for some time to come. By a large class of practitioners this complaint is regarded as incurable, though such persons are willing to agree that great good is accomplished by local washes, etc.; but arguing to the effect that such a course proves but temporary, which really is true in a great many cases, even under the care of the most able peers of our profession. We do not go our "whole" upon the declaration that there are thousands of cases that are amenable to treatment, and which are sacrificed owing to the carelessness and want of judgment on the part of the operator.

Another claim of ours is, that when one-half or more of the gingival tissue still retains its hold upon the teeth, the case deserves treatment at our hands and should not be extracted. * * *

Could we only secure our patients at the first inception of the disease, but little trouble would be experienced in its cure. At least, we can inform them of the danger of its presence, or advise the necessary rules to be observed rigidly, when it has attacked. But as a general rule we are too careless in its observation at its first inception; the disease has made considerable progress ere we discover it.

It may be argued by some that an utter impossibility exists in the cure of this disease, even when the powers of assimilation and self-maintenance are at their full height. We claim that disintegration of the osseous tissue does not occur in a true sense of the term, only a slight absorption of the marginal edges of the parts affected, and though a sponginess of the soft tissue may be present, yet by the removal of the foreign deposit the gums assume their wonted shape and position. We are in the habit of co-operating with the family physician where the case presents a syphiloid character, or mercurialization predominates; as our practical experience increases, so multiplies our inward conviction that the constitutional applications should form the first basis of treatment. Local, but secondary, without the first, the second proves futile.

In those cases where the gums exhibit a leaden or bluish tinge, also, when pressure is applied to the plate of the maxilla, pus oozes freely. We claim—though the gum may remain intact, yet, our carbolic wash, or nitrate of silver, or the different tinctures, applied with our pencil brush down to the very bone, will but yield a temporary issue. With our detergents and anodynes we may relieve our patient from much pain and soreness, yet the great desideratum remains unaccomplished. The fame of the physicians bases itself not on mere relief, but on entire cure.—*Bremer, in Mo. Dental Journal.*

TIC-DOULOUREUX AND NEURALGIA. (*Pesth Med.-Chir. Press*, p. 37, 1871.)—Hertzka believes he is making an important contribution to the pathology and treatment of nervous affections by suggesting the causes leading to the differential diagnosis of the above-named affections, which, in most treatises on pathology, are completely identified, and which, nevertheless, are very different processes in the fifth pair of cerebral nerves. He herein merely reproduces the views of Prof. Benedikt. The most important point in neuralgia is the kind and manner of the pain; the pain increases slowly; then remits slightly; later on becomes more severe, again remits a little, to increase again and entirely cease, or to continue in a milder degree. It further attacks entire nerves, and is rapidly and surely healed. In tic-douloureux (Fothergill's facial pain), on the other hand, the pain is lancinating, increases rapidly, and sinks again rapidly; some single points only are attacked (Valleix's points douloureux), especially at the points of exit of the nerves out of the bones, and it is more rarely, and only gradually, cured. Both diseases are to be treated by the galvanic current, although in different ways. In tic the action is directed upon the trigeminus and the single painful points; in neuralgia, upon the vaso-motor nerve-centres, and the sympathetic ganglia in the neck, in order to produce a contraction of the vessels through the vascular nerves; and further, the current is passed as well along the head, cervical vertebræ, and forehead, as through the head at the cheek-bones.—*N. Y. Med. Journal.*

A CASE OF EDENTULOUS NEURALGIA.—Geo. L., aged seventy-eight years, came to the clinic complaining of an agonizing pain in the body of the lower jaw, and limited to the left side of the face. He had suffered from it almost constantly for the preceding fifteen years. When he lay down at night the pain sometimes disappeared, but attacked him again, early in the morning. It existed on the other side of the mouth for about ten years, then shifted to its present position. The pain was paroxysmal, without twitchings of the muscles. While describing it he suffered so as to be scarcely able to speak. He had all his teeth extracted years ago; was otherwise healthy, and had no neuralgia in any other part of the body.

This affection was brought to the notice of the profession as a new form of neuralgia, by Prof. Gross, some years ago. In a report which he then published, he collated and described a large number of cases both clinical and private, together with his deductions as regarded the pathology of the disease. He found that edentulous subjects were liable to a form of neuralgia caused by bony matter or fibrous deposits encroaching upon the nerve fibres in the alveolar process. After extraction of the teeth the gum changes in shape and character. The alveoli are absorbed and the gum becomes so hard as to be serviceable in masticating food. The nervous filaments may be compressed by this indurated condition, or by the periosteum in the dental canal, so that the nerve fluid is interrupted and pain produced. The pathology of pain is that the action of the nerve is interfered with at the seat of the lesion. Pain in the stomach is sometimes caused by a cramp of the muscular fibers, which, by contracting upon and compressing the nerve filaments, interferes with their action. The nerve current cannot be transmitted in the usual way, and explodes at the part, producing the neuralgia.

This form of neuralgia, caused by imprisonment of nervous tissue, existed in the patient. The only way in which the affection could be cured was by trephining the body of the bone near the angle, exposing and removing half an inch of the inferior dental nerve. This operation has been performed in many cases, and always afforded relief. It will be used in the present case when he returns for operation. In the mean time

℞.—Morphiæ sulphat., gr. $\frac{1}{3}$.
Sig. Every night.

*Epulis.*—This patient was a boy seven years of age, who had an epulis removed from his lower jaw about six months before. At the time of the operation, which was performed by Prof. Gross at this clinic, the bone was denuded of gum at the seat of the disease and carefully scraped. A perfect cure has resulted. He now exhibits a similar growth on the opposite side of the mouth, from the gum of the upper jaw, at the site of the second molar tooth, which was drawn two weeks before on account of the pain. The tumor is rather firm in consistence, of a higher color than the surrounding gum, and is very tender and vascular, bleeding to the touch

This variety of tumor (epulis) is probably of a sarcomatous nature, in some cases malignant, rapidly assuming the characteristics of epithelial cancer; in others benign, not returning after careful extirpation. The epulis does not originate in the gum, but in a socket of a tooth, generally one of the molars, from which it grows, causing the tooth to loosen and fall out. It need not attain a great size in order to seriously interfere with mastication and speech. If left alone it finally ulcerates; has a constant discharge; the neighboring lymphatics become involved; and the system becomes contaminated, and finally succumbs. It is useless merely to pare away this tumor from the gum, as it would inevitably return. The disease is seated in the osseous structure, and the only way to relieve it is to remove the affected part of the bone, either by scraping as in caries, or by sawing out a piece of the jaw. This treatment has been found in many cases to be the only one that gave the desired result.

After administering the anæsthetic, the tumor and gum, at the affected part, were removed with a chisel. The bone was exposed and well scraped. The disease appeared to be circumscribed. The permanent tooth was seen at the bottom of the alveolus. To check the bleeding, which was considerable, Monsel's solution was used; and a piece of raw cotton wet with it pressed into and allowed to remain, for some time, in the wound. Prof. Gross considers this solution of the subsulphate of iron to be the best hæmostatic. But it must be used with care in operations on the mouth or tonsils, as it forms large coagula, which might be drawn into the larynx and suffocate the patient. This accident happened to no less a man than Bilroth, whose patient, at his clinic, drew into his larynx a large clot of blood. The surgeon immediately performed tracheotomy, but the patient nevertheless died.—*Clinic of Prof. Gross, Jefferson College, Med. and Surg. Reporter.*

NEURALGIA FROM EXOSTOSIS.—Some three or four years since I was called to visit Mrs. H., living three miles from New Harmony. On my arrival, I found her suffering the most excruciating pains in the face, the side of her head, and neck, and at all times attended with a constant grumbling, though acutely paroxysmal in its general character. There was no fever, tumefaction, or heat, it was a clear case of neuralgia, from which she had not been free for many months; indeed, such was her suffering, that she seemed on the verge of the grave. She told me that doctors had done all that could be done for her, she believed,—she had been bled, blistered, and taken medicine for months without any permanent relief. Under such circumstances, I strongly suspected local irritation of the nerves, or disease of the alveolar contiguous to it, and carefully examined her teeth, and proceeded to extract one very much decayed, and while doing so, accidentally tapped with the forceps those immediately adjacent, which caused the most intense suffering to the patient; the tooth extracted was connected at the point of the fang with an exostosis as large as a small pea. I then advised, and with her permission extracted six more, all of which were analogous to the first, having more or less osseous deposit on the fang; after which she was very much relieved, and after the use of gentle stimulants and tonics, she gained strength and became comparatively well, and died about three years afterward. This I consider a clear case of neuralgia, mainly if not entirely attributable to the osseous pressure and irritation of the second or third branch of the fifth pair of nerves, which was cured by removing the cause.—*Dr. Robert Robson, in Georgia Med. Companion.*

TREATMENT OF CANCRUM ORIS.—Of all the local remedies or applications I have resorted to in such cases, I have never found any application so useful or so effectual as hydrochloric acid. Neither nitric acid, nitrate of silver, nor chlorate of potash, nor any other remedy that I have ever tried or used, except hydrochloric acid, did I ever find to be of the least use to check cancrum oris. I have almost never found hydrochloric acid to fail to check the progress of this dreadful disease at once, and bring on a most rapid and healthy action in the part. Nor does it cause so much pain or suffering to the little patient as one would suppose, seeing that the gangrenous spot is almost entirely without feeling at this time. This acid is easily applied to the ulcer by means of a feather or small camel-hair brush. I have cured many cases of cancrum oris by this means.—*Dr. McGreevy, in British Med. Jour.*

CASE OF OZŒNA, WITH CARIES OF MAXILLARY BONE.—This patient, a boy of four years, came before the clinic January 3d, presenting the following appearance: his nose is much swollen, and pours out an offensive secretion; the mucous membrane of the inferior meatus and roof of mouth is tumefied, evidently due to subperiosteal effusion from diseased bone; tonsil glands enlarged and diseased; tongue furred; appetite poor; constipated; has had a tumid abdomen since he was eight months old; is evidently laboring under a strumous taint of constitution.

Prof. Pancoast, with a small, straight bistoury, punctured down to the bone, in several places, the thickened periosteum of the hard palate and the gums on either side of the teeth, liberating considerable serous pus. On the nasal process of the maxillary bone punctures were also made, to relieve the periosteal tumefaction. For constitutional treatment he ordered

℞.—Hyd. chlor. mite, gr. j;
Rhei pulv., gr. ii;
Sodæ bicarb. exsic., gr. v. Misce.

to be given occasionally at night, to keep the bowels regular. Also a warm salt-bath every night. The diet to be good and nutritious. He directed the mouth to be washed out several times daily with an astringent bark lotion, and Thudichum's douche to be used night and morning, first with warm salt-water and subsequently with a watery infusion of gum myrrh or cinchona bark, acidulating it slightly with muriatic acid.

The lecturer remarked that care must be taken in puncturing the mouth of a young child not to allow it to suck the blood. Feeling a warm fluid flowing in its mouth, it is very apt to suck, and the loss of blood is not suspected until, the stomach becoming overloaded, it vomits it up in considerable quantity. This accident may be prevented by holding a finger, or a pipe-stem, or a quill, in the mouth, so as to keep it from being a closed cup, until the bleeding stops.

January 13th.—Patient was brought back immensely benefited. The punctures are repeated and treatment continued.

January 29th.—Child so much improved as to be hardly recognizable. Although the patient is almost well, yet the punctures are repeated, to make "assurance doubly sure." A supporting treatment has been continued throughout: one grain of sulphate of quinia in an aromatic solution before meals, and three grains of the pyrophosphate of iron, made into a tablet with gum and sugar, after meals.—*Prof. Jos. Pancoast's Clinic, Jefferson Med. College, in Phil. Med. Times.*

PROGRESSIVE FACIAL HEMIATROPHIA.—Dr. Buzzard showed a case of unilateral face-atrophy, dating from an attack of chorea. A female, aged twenty-five, applied to him at the National Hospital for Paralysis on account of fits, epileptic in character, which had troubled her for eleven years. She had been attacked with chorea when six years old, and again at thirteen; and, after this second attack, the right side of her face was observed to grow thin. The atrophy involved chiefly the frontal, malar, and inferior maxillary bones, together with the alar cartilage, the buccinator, masseter, and, in a less degree, the temporal muscles. The tongue was greatly wasted on the same side, and the palate was also involved. Cutaneous sensibility was unaffected. She was liable to attacks of hemicrania affecting the right side of the head, which had commenced between the first and second attacks of chorea. There was some mental deficiency. A systolic mitral bruit was present. Dr. Buzzard was inclined to refer this rare and obscure case to the category of those described by Eulenberg under the title "progressive facial hemiatrophia," and suggested the possibility of embolism of a nerve-center accounting for the peculiar disturbance of nutrition.—*Clinical Society of London, in Medical Times and Gazette.*

STOMATITIS.—A case of mercurial stomatitis happened to a woman aged thirty-six years, attacked with jaundice, to whom calomel was given as a purge by a physician. Also in this case a diluted solution of hypermanganate of potash (8-12 gr. to the lb. aquæ dist.) was made use of, as a gargle, upon which, after eight days, the complaint so much improved, that she felt but little pain in eating.

In a case of scorbutic stomatitis, the external application of hypermanganate of potash was accompanied with no special result. The gums formed fringes of $\frac{1}{4}''$ long, which spread over the teeth and bled very easily. In this case, touching with nitrate of silver was kept up for a period of five or six days. In three or four weeks, the gums returned to their normal form and size, the property of bleeding easily was still present.—*Dr. Spatzenegger, from Allgemeiner Wiener Medizinische Zeitung, Medical Press and Circular.*

NECROSIS, WITH SPONTANEOUS RESECTION OF LOWER MAXILLA.—On the 14th of July, 1862, I was called to the house of Mrs. L., widow, to see a little girl who the messenger informed me "had something the matter with her mouth." Reaching the house, I found a child between six and seven years of age with considerable deformity of the lower jaw, on the right side, with inflammatory swelling of the face upon the affected side. The deformity of the jaw presented a smooth, regular outline, and conveyed to the touch the sensation of an osseous tumor.

Inserting my finger into the mouth, I found the right lateral incisor tooth, projecting above the line of the incisor teeth, loose, and between it and the incisors I could feel the end of a necrosed piece of bone. The fragment of bone appeared so loose, I determined to remove it at once, and, if not able to do so, to extract the tooth. I furnished myself with a curved pair of dental forceps, and laid hold of the exposed bone. I drew upon it, but exerted hardly any force. Need I say I was astonished, when I saw almost the entire horizontal portion of the jaw following my forceps?

The operation was attended with but little pain and no hemorrhage.

The necrosed portion of bone measured one-fifth of an inch in length, and was a complete section of the jaw, containing four teeth. The right lateral incisor with the socket of its permanent successor exposed; the canine, the first molar, and the second molar on a line with the alveolar process and in a forward state of development. One feature in the development of the teeth is singular: the right lateral incisor and the second molar seem to be in the same stage of development. The cancellated structure is denuded of its dense external layer, except in that portion round the mental foramen. After the removal of the fragment, I could feel, with the finger in the mouth, a ramus of bone curving downward, causing the deformity, and which united the two divided extremities of bone. In fact, a complete new jaw had been formed, while the necrosed bone was still *in situ*, the new bone having made a bold curve downward to avoid it. There was inability to open the mouth to its full extent, and immobility was the worst distressing symptom for the three months during which time I kept the case in view.—*Dr. Ely Van de Warker, in Georgia Med. Companion.*

THE DEATH IN NEW YORK FROM NITROUS OXIDE.—We have received from New York the particulars of a case in which death speedily followed the extraction of teeth after an ineffectual endeavor to administer nitrous oxide gas. A jury of ten persons, each of whom wrote M.D. after his name, returned an elaborate verdict commencing with the finding that the deceased "came to her death from asphyxia or apnœa, as evidenced by the symptoms manifested by the patient before death and the conditions found at the post-mortem, the asphyxia having, in our opinion, been induced by the inhalation of gas administered." This is followed by certain comments or riders concerning the mode of preparation of the gas used in the case, and concerning the qualifications of persons by whom gas is administered.

Upon such a finding, it is very possible that the case may come to be recorded as one of death from nitrous oxide; and, as the facts will by no means bear such an interpretation, it seems worth while to call attention to them in detail.

* * * *

[This case has been previously reported in the DENTAL COSMOS. —ED.]

Upon the testimony, however, the facts seem to admit of only one interpretation. The nitrous oxide could have had no more to do with the fatal issue, either directly or indirectly, than if it had never been brought into the room. The patient manifestly fainted from terror, doing so as soon as her state of mental tension was relaxed by the operation being completed. Her syncope was just a result of the reaction of an overstrung nervous system; and, if Mr. Newbrough had only laid her flat on the floor, she would probably have recovered in five minutes, have paid him his fee, and have walked away from West 34th Street as well as she entered it. It was the unwisely holding her upright that determined the fatal issue; and although one must sympathize with the queer medical jury to the extent of admitting that no anæsthetic agent should be intrusted to a man who treats syncope by the erect posture, yet still, when we consider the wide prevalence of his error, we must not be too hard on the dentist. We have lately heard of a case in which a poor woman fainted on an English race-course, and the strong arm of the law, in the person of a stalwart policeman, instantly erected her in a sitting position, with her back against a post. Fortunately a medical man passed by in time to save her from death by laying her down again until she recovered; but the chances of her following Mrs. O'Shaughnessy were at one time fearfully great. Moreover, "sitting up" is the most common cause of death after or during enfeebling illness. You hear from the nurse or the friends that the "poor dear *would* sit up to take beef-tea," or "*would* sit up on the nightstool," and that he or she "went off like a lamb." We once witnessed a very sad scene, in which a group of relatives were holding up the corpse of a fine girl, who probably would have been in no danger if she had been allowed to remain where a faint had caused her to fall. Strangely enough, she was to have undergone an operation on the following day; and her death, if it had been twenty-four hours delayed, might easily have been attributed to chloroform.

In this last circumstance—the possible coincidence in point of time of the administration of an anæsthetic with sudden death from some other cause—we have a factor that must never be lost sight of in such cases. There is one well-authenticated history of a man who went to have a tooth drawn, and asked for chloroform. The operator had none, and went a short distance to fetch it, to find his patient dead on his return.

The absence in Mrs. O'Shaughnessy's case of any apparent cause for sudden death other than emotional syncope and the upright posture, and the entire sufficiency of these to explain the occurrence, seem to render the verdict of the New York jury one of the most astonishing on record. It can hardly fail to be challenged by American medical journals, and we shall be curious to see what attempts are made to justify it.—*The Lancet.*

CHLOROFORM-DEATHS.—I beg to add my testimony to the truth and importance of the statements contained in the valuable paper on chloroform contributed to the last number of the *Journal* by my friend and colleague Mr. Green. I fully believe with him that failure of the heart is the great source of danger in its administration, and that electricity, cautiously employed, is the most prompt and certain remedial measure. I shall not soon forget a striking example in the case of an old man admitted with strangulated hernia. The taxis under ordinary circumstances having failed, he was put under chloroform for another trial previously to operation. The hernia was now readily reduced, but immediately he became deadly pale, his pulse stopped, and he seemed *in articulo mortis.* Instant recourse was had to the electro-magnetic battery, and almost as instantly the pulse returned, and the man was safe.

In my experience, whenever dangerous symptoms have arisen, the heart has been the organ affected; and that is, I believe, the result to be watched and provided for when chloroform is administered. I can readily imagine that the lungs may suffer and asphyxia be produced by complicated apparatus and failing valves, mechanically suffocating the patient. Nothing can be more simple, and in my judgment more safe and effectual, than the plan adopted at the Bristol Royal Infirmary. A hollow sponge, conical in shape, with a hole at the apex, is held loosely over the mouth and nostrils, the chloroform being sprinkled on the interior, with or without the intervention of a bit of lint, the admission of air being regulated by a thumb on the hole at the apex. In the two deaths from chloroform which have occurred in the Infirmary, only a very moderate quantity was used, as if the unfortunate result were due to some idiosyncrasy.

My chief object, however, in supplementing Mr. Green's paper, is to give a word of caution in the use of electricity in cases of threatened death from syncope. It is well known that a powerful electric shock sent through the par vagum will paralyze the heart and stop its action. Hence, if we be not careful, we may inadvertently increase the evil which we are endeavoring to remedy.—*W. F. Morgan, F.R.C.S., in British Medical Journal.*

CHLOROFORM-DEATHS.—We have to-day to record two chloroform-deaths—the fourth and fifth deaths during the administration of anæsthetics recorded in our pages during the last few weeks. Two of them, however, were from the dropping of foreign bodies into the air-passages: in the one case, a plate supporting artificial teeth; and in another, part of a gag, which had broken in the mouth. One of the fresh cases which we have to record to-day occurred recently at the Royal Eye Hospital, Manchester; and the notes of it are communicated at page 472. The other occurred on Wednesday at St. Bartholomew's Hospital. Chloroform was, we understand, administered by one of the house-surgeons in the usual manner, to a young man having a phagedænic sore. After a very few minutes, before the patient was fully under the influence of the vapor, the pulse ceased, and all efforts, including galvanism and artificial respiration, persisted in for an hour by the two house-surgeons, proved unavailing to restore life.—*British Med. Journal.*

THE SOFT PALATE.—Dr. Harrison Allen, of Philadelphia, read a paper, illustrated by drawings, on "The Soft Palate in Health and Disease."

After some remarks upon the importance of the subject and the insufficient attention it had received, he stated that he should discuss it under the following heads: 1. The soft palate as seen from the oropharynx. 2. The soft palate from the naso-pharynx. 3. The relation existing between the mechanism of the soft palate and its blood-vessels. 4. The nomenclature of parts associated with the soft palate.

He announced the modern views of the mechanism of the soft palate, and next considered the relations of the palato-glossal fold to the tonsil, stating that in tonsillitis it was widened, and appeared as if spread out over the gland. Immediately to its outer side a whitish tract continuous with the pale mucous membrane of the floor of the mouth was discernible. The distribution of the blood-vessels in this groove indicated, it was thought, nutritive connections with the tongue and floor of the mouth. The condition of the palato-glossal fold should always be studied in tonsillitis, more particularly in periadenitic changes. This consequence of inflammation of gland tissue had not received, in the case of the tonsil, the attention it deserved. The speaker invited notice to the mucous membrane covering the anterior edge of the coronoid process, as it appears when the lower jaw is depressed. This tract he denominated for convenience in description the *præcoronoid space.* Its nutritive relations were with the soft palate rather than with the lower jaw or the cheek. Inflammation of the cheek tissues was not apt to extend upon it, while inflammatory action about the lower wisdom tooth (as dentists assured us) was readily transmitted to it, thence to involve the soft palate. Conversely, ulcerations of the soft palate might tend to involve the parts about the wisdom tooth of the lower jaw. Attention was next directed to the importance of the palato-pharyngeal fold. This fold determined the site of pharyngeal irritation. Immediately to the median side of each fold a corrugation of the pharyngeal mucous membrane was met with in pharyngitis, more particularly in syphilitic angina. The study of these folds was important, since they were frequently the seat of ulceration.

The naso-pharynx was a cavity of less interest than the oro-pharynx. Direct lesion of the parts was seldom seen in connection with troubles of the soft palate. Ulceration was rarely found, excepting that of syphilitic origin, which was common. Gummy tumors were also rare.

The vessels as they appear upon the soft palate were next described, and the proposition stated that the position of some of these vessels being ascertained, the points of traction during the elevation of the soft palate could be determined. It was also demonstrated by cases that ulcerations of the soft palate have their shape and position assigned by the arrangement of the blood-vessels.

The doctor ventured to make some suggestions upon the terminology of the parts associated with the soft palate. He would discard entirely the term "arch" as applied to its inferior tractors, and would use "fold," saying *palato-glossal* and *palato-pharyngeal fold* of either side. The transverse space between the palato-glossal folds was the *oro-pharyngeal orifice* (Luschka); that between the palato-pharyngeal folds the *naso-pharyngeal orifice* (ibid.) The space between these orifices following the curve of the pharyngeal wall was the *tonsillar space.* The space between the two tonsils was the *inter-tonsillar space.* The term "fauces" was rejected as being too vague.—*Proc. Amer. Med. Assoc., Medical Record.*

STAB UNDER THE JAW—SYMPTOMS FOLLOWING.—An Irishwoman, aged thirty-five, now (April 1st) under care, shows remarkably well the signs of complete paralysis of the right hypoglossal nerve. The symptoms followed a deep punctured wound, which passed from close to the angle of the jaw downward and rather backward toward the larynx, and at the bottom of which the greater cornu of the hyoid bone could be felt. Her speech is "thick"; she cannot pronounce all words clearly, because, as she says, "the tongue is too large." She thinks she can articulate more clearly when lying down, because the tongue then falls back somewhat and does not fill the mouth so much. When she puts the tongue out it is pushed over to the right (injured) side very distinctly. The paralyzed (right) side is convex, and looks considerably larger than the left side, which (when the organ is protruded) is concave. The paralyzed side remains quite flabby and soft when put out, while the sound becomes firm. When she eats she cannot move the food about in the right side of the mouth, and has sometimes to push it over to the left side with her finger. She lost a very large quantity of blood from the wound, and was, when admitted, blanched, faint, and unable to walk. She said that the blood "poured" from the wound. Before admission a surgeon had seen her, and applied strapping and a compress. No bleeding was going on when she was brought to the hospital, nor has any occurred since. The wound was plugged with bits of sponge, two of which were removed on the third day and the remaining one on the fifth.

It seems very probable that the lingual artery was divided as well as the nerve, and that the division was complete. In this way we can account for the rapid loss of a large quantity of blood, while the retraction and contraction of the cut ends would explain the freedom from recurrence of bleeding.

She is going on well, and her difficulty of speech is diminishing, but the paralysis of the tongue is as complete as it was on admission.—*Mr. Hutchinson's Clinic, London Hosp., in Med. Times and Gazette.*

DILATATION OF THE DUCT OF STENO IN A GLASS-BLOWER.—Dr. Tillaux reports, in the *Bulletin Général de Thérapeutique Médicale et Chirurgicale* for April 15th, the following curious case. The patient was a young man aged twenty, a glass-blower by occupation, who presented a tumor about the size of a large nut, situated a little above and in front of the angle of the jaw. Upon pressure, it was found to disappear almost entirely, with a gurgling noise, but it reappeared when the patient distended the cheeks during expiration. The cyst was punctured and injected with milk, which, when pressure was afterwards made upon the tumor, could be seen to flow from the orifice of the duct of Steno, showing that the rare accident of dilatation of the duct had taken place in consequence of the continued distention of the cheeks in glass-blowing. Dr. Tillaux says that the mechanism by which the duct of Steno opens into the mouth resembles that by which the ureter opens into the bladder. It is difficult, therefore, to understand how even air can penetrate the duct from without. The tumor disappeared entirely under continued compression systematically carried out. If this had failed, M. Tillaux would have had recourse to injections of iodine.—*Philadelphia Medical Times.*

FRACTURE OF THE BONES OF THE FACE.—Certain injuries of the face are followed by anæsthesia of half of the upper lip. Different theories as to the nature of the accident are held. Jarjavay considers it a symptom of fracture of the malar bone; Richet, of the upper jaw-bone, and connects the symptoms with a lesion of the infraorbital nerve. I have dissected two cases of destruction of the infraorbital nerve, coincident with the following lesions of the bones of the face. The first died so soon after his injury, without ever passing out of his state of coma, that I was unable to assure myself by experiments that the upper lip was insensible; the other lived for a month and a half, and by many experiments I proved the complete insensibility of his left upper lip; he did not feel the entrance of a pin into that part, usually so sensitive. In his case the infraorbital nerve was completely destroyed at its exit from its canal; in the first it was divided in the centre of the canal. In both cases there was a marked flattening of the zygomatic arch. In both there was a fracture of the malar bone, above the upper jaw-bone, at its outer and upper wall, the internal wall and alveolar margin being left entire. Such accidents are the results of antero-posterior violence, such as a fall upon a pointed object, or a severe blow with a fist.—*M. Dubrieul, Edin. Med. Jour., from Gaz. des Hôpitaux.*

ON THE SO-CALLED SERPENT TEETH. By George W. Callender, F.R.S.—The term "serpent teeth," Mr. Callender tells us, is the popular expression to denote torsion of one or more of the incisors, usually of the upper maxilla. This deformity is briefly mentioned by systematic writers on dental surgery, but no definite explanation seems to have been given of the mode in which it occurs. After referring to the development of those parts of the upper maxillæ which are connected with the incisor teeth, Mr. Callender proceeds to apply the facts which he has set forth, in the following summary:

"1. If the incisor process is weak, or retarded in the time of its development, it has less than the normal control over the forward growth of the intermaxilla, and the alveoli grow forward, and the teeth project in proportion.

"2. If the incisor process is stunted, it grows in, and narrows the palate. By side pressure on the posterior portion of the intermaxilla, it forces it in, with a twist on its axis, and, the sockets growing under the influence of this twist, the incisor teeth suffer torsion. The temporary teeth may show little of this malformation, whilst the permanent teeth, the sockets of which are more closely related to the solid fabric of the intermaxilla, are those which suffer.

"3. In the treatment of the extreme malformation, cleft palate and harelip, when the incisor process has aborted, great care should be taken by the operator in pressing back the intermaxilla not to give it a lateral twist. * *

"4. When the incisor process aborts, the incisor teeth are apt to suffer from imperfect lodgment, the protecting alveolar plates from the incisor process being absent; the lateral incisors are more likely to fail than the central, the latter having their sockets most largely formed by the central part of the intermaxilla.

"5. In the ossification of the central part of the intermaxilla, plates of bone are formed one above the other, those in front being placed horizontally, leaving intervals between them. This arrangement may account for the occasional horizontal position of a permanent incisor, the direction of its socket having been determined during the early steps of its development, and may also explain the chance formation of an extra chamber for a supernumerary tooth.

"6. If the labial surface of an incisor is twisted in (towards the middle line), it is due to pressure from the opposite side, the maxillary arch having been forced in from imperfect development of one of the incisor processes,—the central incisor is the tooth usually distorted in these cases."—*St. Bartholomew's Hospital Reports, Am. Jour. of Med. Sciences.*

Congenital Hypertrophy of Tongue.—Mr. G. Lawson exhibited a little girl, aged fifteen months, with congenital hypertrophy of the tongue. The child was so stunted and ill developed as to give the appearance of an infant about three months old. The fontanelles were as wide open as at birth. She showed no signs of any teeth, nor had she indicated any marks of intelligence. The tongue was a large fleshy mass, which not only filled the mouth, but a large portion lolled outwards between the lips. With pressure with the finger, the child would withdraw the tongue into the mouth; but it was almost immediately afterwards again protruded. Notwithstanding the size of the tongue, the child could suck well, and take the required amount of nourishment by the bottle. The father and mother were healthy, and had two other children, both of whom were healthy and intelligent. The child was born at the full period of utero-gestation. The mother attributed the defect to a strong impression she received when visiting the Crystal Palace, when in about the third month of pregnancy. She said she was terribly shocked by the appearance of some African figures with large protuberant lips.

Dr. Langdon Down thought the child of the cretinous type. He had seen such with large tongues and swellings in the neck.

Mr. Arnot referred to the case of a child with a large tongue, which lived eighteen months. The new growth was mainly connective tissue.

Dr. Sanderson mentioned a similar case, where the lymphatics were enlarged.—*Clinical Society of London, in Medical Times and Gazette.*

CYSTIC TUMOR OF THE JAWS. By Alfred Coleman.—Mr. Coleman believes cysts of the upper maxilla to be more common than is usually supposed, and expresses the opinion (which, if we mistake not, is now generally entertained by pathologists) that the affection ordinarily described as "dropsy of the antrum" does not consist of an accumulation of the natural secretion of that part, but is an example of cystic formation, probably due to the irritation caused by the presence of carious teeth. The treatment recommended by Mr. Coleman is to make a free incision through the bony wall of the cyst, with a strong scalpel, and then induce suppuration by introducing a tent of lint moistened with a solution of carbolic acid: if, however, the tumor be connected with a tooth which is so much diseased as to justify its removal, extraction should be practiced, when the tent may be introduced through the alveolus; or, if the cyst should itself come away with the tooth, the use of the tent may be dispensed with. Mr. Coleman's views as to the true nature of the so-called dropsy of the antrum were, he tells us, first announced in communications which he made to the Odontological Society of London, in 1862 and 1863.—*St. Bartholomew's Hospital Reports, Am. Jour. of Med. Sciences.*

REMOVAL OF POLYPUS FROM PHARYNX.—An interesting operation for the removal of a polypus from pharynx was performed. A free incision was made, commencing just above the right ala nasi, and continued downward through the lip. An incisor tooth was extracted, and a large triangular piece of the superior maxilla was removed in order to reach the tumor, which was attached to the base of the skull. The portion of bone was replaced, and held in its place by sutures; the wound was neatly closed, and scarcely any disfigurement of the face perceptible.—*Clinic Guy's Hospital, Med. Press and Circular.*

USES OF THE UVULA.—In January, 1869, I had the honor of calling the attention of the profession to this subject in the following terms: "Can any of your readers inform me what are the acknowledged uses of the uvula, and what unpleasant results have been known to follow its shortening or removal?" This failed to call forth a single reply, and in the following October I revived the subject in *The Lancet*, and I wrote personally to many eminent members of the medical profession, a summary of whose answers you were good enough to publish at that time. Still, the uses of that disregarded little organ were anything but satisfactorily explained. *Quot homines, tot sententiæ.* Even Sir Duncan Gibb, who has recently entered upon the subject in a very able manner, did not extend his answer to my questions beyond the one alluding to the operation. Sir Duncan confines the uses of the uvula to the functions of deglutition and vocalization (see *The Lancet*, February 10th, 1872). Now another proceeding occurs to me, in which, to say the least, it takes a very active part. I inflate my mouth, my cheeks being fully distended, and retain it in this position as long as I please. The inflation remains complete and uninterfered with (so with blowing a well-sustained jet of tobacco-smoke from the mouth), the breathing being performed all the time through the nostrils. I blow a wind instrument: not an atom of breath passes through the nares. Again, with my mouth wide open, I am able to drive the whole current of respiration through those nasal channels, none passing through the oral chamber. Now, in a recent case of enlarged and very much elongated uvula, my patient told me that in performing the three several movements which I have suggested above, he distinctly felt the uvula taking up its proper position to barricade the particular route which the respired air did not traverse, and, his mouth being opened quickly on each occasion, I was well able to see the uvula sluggishly returning to "as you were." I shortened the uvula to its natural length, and the three before-mentioned performances were accomplished with greater facility and promptitude.

Now, sir, with regard to the *removal* of the uvula, I have not myself seen a single well-attested case of any ill effects having arisen from that operation, and indeed some authors (the late Dr. Yearsley, for instance) declare that, "in order to gain all the advantages, and insure no disadvantage, from the operation, it is necessary that the *whole of the uvula* should be removed, and not a part only, as has been the usual practice." Indeed, he lays it down as an axiom that "the shortening of the uvula is a most objectionable proceeding."

Dr. Horace Green, of New York, a man of most extensive experience, entirely concurs, in his instructive work on the air-passages, etc., in the above sentiments expressed by Dr. Yearsley. If any gentleman would produce a case of injury and lessened vocalizing power arising from the *removal* of the uvula, and exhibit the same at one of the medical societies in London, it would do much to set the matter at rest, and give great satisfaction to the profession.—*Dr. C. B. Garrett, in London Lancet.*

PRECOCIOUS DEVELOPMENT.—Case, a female child who died of diarrhœa at the age of five and a half years. She was five feet in height. The incisor teeth had all appeared when she was six months old, and at nine months she had all the molars. At a year and a half old, she menstruated; and, especially in her later years, the periods were tolerably regular. The external genital organs were well developed, without hair; the breasts were full, and the pelvis roomy. The condition of the internal genitalia was not ascertained. As regarded her intellect, she did not appear to be in advance of other children of her age, although she had begun to speak when six months old.—*Fluegel, in the Bayr. ärtzl Intell.-Blatt, British Med. Journal.*

MICROSCOPY OF MINUTE ORGANISMS.—Take some of the decayed matter from a decayed tooth,—the greenish slimy scum on the teeth of filthy and neglected,—or matter lodged between the teeth, and the accumulations of tartar on them, and put it into the animalcule cage with a drop of water, and place under the microscope and look down.

At first the inexperienced observer will discover only confused masses of matter scattered over the field; but, on close observation, definite, minute, dark points will be seen in constant vibratory motion, scarcely leaving their places, but a motion that never ceases. This motion is brought about by some invisible means not recognizable. These minute forms are apparently globular, or nearly so, varying in size, by actual measurements by myself, from the 1-60,000 of an inch to the 1-10,000 of an inch in diameter,—these measurements being the recognizable limits. I have seen none larger, nor could I make out any smaller distinctly. By improved methods of illuminating the objects, they may be recognized still smaller. Five hundred diameters, or thereabouts, shows them to best advantage.

In some specimens, threads of *Oidium Albican* may be seen, varying in length, like minute white threads, about 1-12,000 of an inch in diameter, and indefinite lengths. Besides these, two other forms may be made out. One would appear to be composed of three of these globular points, united lineally, called *vibrios* by Darwin, *gemmules* by others, *denticolæ* by some; occasionally *leptothrix*, or serpent forms, may be seen, the head measuring 1-10,000 of an inch in diameter, tapering to a point, many times longer than their diameter, swimming with serpent-like motions and rapidity. These are not numerous,—in many specimens wanting.

There is another quite constant form, slipper-shape, or like a blunt wedge, much larger than the others, with sluggish but constant motion, larger, and measuring about 1-6000 of an inch, their length being about double their thickness. I cannot say whether they are any kin to the other or not, probably not—they no doubt belong to an aristocratic family, or one of the first families in the microcosmic dominion.

The *oidium* may be seen contracting so as to produce a jerking kind of motion when a number of them are attached to any fragments of matter, by contracting suddenly in slow repetition, but continuous at times; at other times at rest. These may be parasitic plants, or may be animals.

A specimen of pus, running from the outside through an opening from a fractured jaw, contained but few animalcules of any kind; a case of four months' standing. A piece of alveolus removed about the same time, half an inch in length, contained myriads of the smallest globular forms.

The specimen of pus was allowed to remain on the glass in the moist chamber twenty-four hours, which developed them moderately plentiful. I refer mainly to the globular form, which are always present whenever any of the others are seen, and in many cases where the others are not seen, and are always much the most numerous in all cases.

Numerous specimens of decayed teeth, that had been out of the mouth for several years, were examined, and all found to contain them in great numbers. So soon as water was put into the cavity and stirred around with some pointed instrument, and some of the milky-looking matter put in the cage and examined, they became as active at once as those from a fresh specimen, just from the mouth, in every instance.

A number of pulps were examined, from teeth that had ached, and were more or less inflamed, and in various stages of decomposition, all of which contained them in great abundance; in some instances more numerous than in others. Some were intensely injected with blood. These contained the most, as a rule.

The pulp-chambers, from a number where there was a healthy pulp at the time the teeth were removed, all contained them in greater or less quantities.

Several more perfectly healthy and not inflamed fresh pulps were examined, and all found to contain them.

A decayed tooth, that had been out of the mouth over twenty-five years, contained them in as great quantities as any other specimen.

A lot of sound teeth that had been kept in alcohol, "*for the purpose of replacing lost ones*," about fifty years, from reliable data, on splitting open several of them, and examining the alcohol from the nerve-chambers, all contained them in as lively a condition as any other specimens, there being no signs of pulp in them. The alcohol also contained them. These teeth came from France, so supposed, and were most likely taken from dead subjects, from the dissecting rooms. There were some fine globules, as large as the 1-8000 of an inch. These had a spot in the center, resembling a nucleus. None of the others were any larger than any of the other specimens; no difference in any respect discoverable. They lived in the alcohol all this time; no doubt the alcohol had been often renewed; *only the one form seen.*

A specimen of pus, from a running fistulous opening in the cheek, where a large portion of bone had been removed several years since, from necrosis, contained them in great numbers.

I split open a perfectly healthy and sound incisor tooth that had been out about fifteen years, the dried pulp perfectly white, and on adding a drop of water, and then removing the pulp, it was found to contain myriads of them.

I examined dozens of other decayed teeth, with uniform results; especially small globular forms were present.—*S. P. Cutler, M.D., in Nashville Jour. of Med. and Surg.*

Extraction of Artificial Teeth from the Œsophagus.—Early on the morning of April 25th, I was aroused by the housemaid, who said she had something in her throat, and that she feared she had swallowed her artificial teeth during her sleep. She was much distressed, and made constant efforts at deglutition. I passed my finger down the throat, but, although I could reach below the cricoid cartilage, there was nothing abnormal to be felt. I then passed a long œsophagus forceps, guided by my finger, down the throat, and, about four inches beyond the point where my finger reached, the forceps struck against a foreign substance, which I seized and gently withdrew. This proved to be a metal plate holding two teeth, and from which projected two ugly-looking hooks for its attachment to the adjoining teeth. The young woman complained of soreness while swallowing for a day or two afterwards, but is now quite well.—*Arthur Bracey, M.D., in British Med. Jour.*

Swallowing False Teeth.—On perusing the case of a gentleman who had during the night swallowed his false teeth and plate, I was certainly very much surprised at the heroic treatment observed in this instance, as well as several others I have read of before,—*e.g.* the butcher who was mentioned some months ago, in whose case the treatment amounted to nothing less than gross barbarity, from which our forefathers would have shrunk with horror. A simple treatment might have availed at a shorter period without risking the life of the patient for ten days, and putting him to so much unnecessary suffering.

A similar case happened to a patient of mine. A young woman rushed into my surgery one night in a high state of excitement, saying she had swallowed four of her front teeth, plate, hooks, and all. I told her to sit down and calm herself, and having tried with the probang to find the situation, I ascertained it was lodged midway in the œsophagus. I made her take a powerful emetic of sulphate of zinc, and added plenty of warm water, and in about fifteen minutes afterwards she vomited, and we were both much relieved by hearing the click of the plate and teeth in the basin. The power of the emetic relaxed the spasm in the œsophagus, and thus sent forth the foreign body, which could not have been pushed down without fearfully lacerating the parts and endangering life.—*Orlando Haviland, M.R.C.S.E., in The Lancet.*

Extirpation of Tumor from the Antrum of Highmore.—This was a man, aged sixty-five, who was admitted into the Middlesex Hospital, under the care of Mr. Lawson, on March 18th, 1872, suffering from a tumor of the upper maxilla. The man stated that the growth first showed itself about four months ago, since which time it has steadily increased. On his admission there was a soft, elastic swelling, about the size of an egg, over the left upper maxilla; there was a bulging between the lip and alveolus, corresponding to the canine tooth, but there was no protrusion of the palate or closure of the left nostril. An exploratory incision made through the protrusion in the mouth found the antrum filled with a soft growth, which broke down under the finger, and had very much the appearance of recurrent fibroid. The whole of the anterior wall of the antrum was absorbed. Two or three days after his admission an erythematous blush attacked the face, the skin over the tumor became shining and red, then ulcerated, and the tumor from within the antrum burst through. All swelling and œdema of the surrounding tissues now subsided, but the tumor grew with great rapidity, and in another fortnight presented a prominent fungating surface, from which there was a constant discharge. The growth was so rapid that there was a visible increase from day to day.

As there was much of the skin now involved, Mr. Lawson decided to try to extirpate the disease partly by cutting and partly by caustics. He accordingly first excised all the diseased structure from the antrum, then freely applied the actual cautery, and, lastly, lined the walls of the cavity with the chloride of zinc paste spread on pieces of lint. A subcutaneous injection of morphia was then given.—*Middlesex Hospital Clinic, Medical Times and Gazette.*

Tannin and Glycerin.—Tannic acid is frequently prescribed in concentrated solution with glycerin; but tannin, commercially obtained, possesses various impurities which either remain as insoluble turbidity or discolor the solution. Firstly, a green resinous coloring matter, insoluble in water but soluble in strong alcohol and glycerin, invariably occurs. This contamination results from the solvent action of the ether in the original process of extracting the tannin. Secondly, metallic chips of copper, iron, etc., from the vessels in which the tannin was dried are never absent.

A concentrated solution of tannin is nearly indispensable among the requisites of the prescription department. An aqueous solution, however concentrated it may be, will spoil. An alcoholic solution is often objectionable, but an aqueous solution, containing glycerin, can be utilized on almost all occasions.

This solution is best adjusted by weight; it is perfectly stable, clear and transparent, and contains one troyounce of tannic acid in two troyounces of the solution, that is, half tannin by weight. The solvent is the other half, or 1-4 each by weight glycerin and water. More than this proportion of glycerin cannot be used to advantage, as the liquid becomes too thick to pour conveniently. This solution cannot be prepared, however, by directly combining the three ingredients, as the impurities must first be removed; and the only preliminary solvent for this purpose, which the writer has found to answer perfectly, is a mixture of equal measures of strong alcohol and water. A very concentrated solution, in the proportion of two parts of liquid to one of tannin, can be formed with the aid of heat, which filters with the greatest facility, leaving the resinous coloring matter and the metals untouched.

Alcohol alone, in the proportion of four to one of tannin, would not filter well. Water, in the proportion of at least four to one of tannin, would not filter even as rapidly as the solution with alcohol; and whilst the alcoholic solution becomes turbid with water, the aqueous solution never became clear from the first, and moreover was always much darkened by the metallic impurities forming colored soluble tannates. The preliminary solvent, and permanent solvent above proposed, are therefore the only available ones. These form a light-green, thin, syrupy solution, miscible with glycerin and water in all proportions without losing their brightness, and forming in a more dilute condition colorless solutions.

From these observations the following formula is deduced:

Take of Tannin, 8 troyounces;
Glycerin, 4 troyounces;
Strong Alcohol, 8 fluidounces;
Water, 8 fluidounces.

Mix the alcohol and water; add the tannin and apply heat until the tannin has dissolved. Filter hot, then add the glycerin and evaporate by a careful heat until the solution weighs sixteen troyounces.—*R. Rother, in The Pharmacist.*

The Repetition of Experiments.—The importance of experimental investigation, so strongly insisted on by Bacon, and practiced since by scientists as the basis of the true scientific method in physical researches, is now so generally admitted as to need no argument. The importance of not accepting results as final determinations of physical laws, until repeated experiments leave no room to doubt their accuracy, is not so generally appreciated. The really scientific investigator always retains some reservation in his acceptance of results attained by others, unless, through the most careful scrutiny, he can find no error in their method of experimentation, and can devise nothing which appears a more sure way of arriving at truth. The prestige of name and attainments goes far to influence belief, but those who think for themselves need a surer foundation than this in matters where accuracy is essential. Libraries of reference contain tables which are relied upon by engineers and constructors in making their computations, and in the use of which they cannot go far astray; yet many of them have been found in practice to be inaccurate. At least, recent experiments have given results differing more or less from those formerly obtained, and from which the tables were framed. As long as differences exist greater than may be accounted for by inaccuracies in manipulation, there must remain doubt as to the correctness of our knowledge. Experiments upon any subject should, then, never cease until a certain degree of uniformity is attained through the employment of different methods.—*Scientific American.*

# HINTS AND QUERIES.

ANSWER TO "C. S."—To remove the black from Arkansas-stone, rub it with a piece of pumice-stone dipped in water. To take out oil-stains, soap will be required. The Arkansas-stone is rubbed down evenly all over its surface, and the "guttering" caused by the sharpened points is retarded.—H.

IN answer to the question, "How can the black deposit be removed from Arkansas-stone?" I would state that kerosene oil has always effectually removed it for me, without the great amount of "elbow-grease" suggested by some persons. —W. C. B.

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POINTING PLUGGERS.—I have seen somewhere a description of a method, new, to me at least, for pointing pluggers for packing foil; and, getting a favorable impression of the process from the description, have been experimenting for three or four weeks, with the happiest results.

I take a "blank" or broken point, a trifle larger than the point of the finished instrument is to be; file up nearly into shape, and bend the point to the desired angle; then file a very slight groove around the point of the instrument about one eighth of an inch from the end, and about one-fiftieth of an inch deep. Harden as hard as possible, and then *break* the point off in the groove aforesaid, leaving a beautiful crystalline surface on the point, which I find combines the good qualities of *serrated* and *smooth* points, inasmuch as, while it has no large *points* to make *rat holes* in the filling, it has yet sufficient roughness to increase the welding surface of the gold considerably, and to make the point *take hold* of the gold readily in picking up the mats or pellets, and also to prevent the danger of *slipping* which we have to contend with in using smooth points. The surface of the gold also, as it is packed, presents a *dead* crystalline appearance, much easier for the eyes than the polished surface left by smooth points.

This is eminently *practical*, as I have demonstrated during the last few weeks many times, and it costs nothing to try it. The idea is not mine, but I am unable to recall the author now, or should be very happy to give him credit. The method of pointing, however, is original, so far as obtaining the requisite *face* by grooving is concerned, and I hate to see a good thing go by for lack of notice. *Draw* the temper, holding the point against a block of lead, and grind the extra metal at the point away on the corundum wheel so as to leave sharp angles at the circumference of the point.—WM. E. HYDE.

WHAT I KNOW ABOUT CELLULOID.—In point of color it is far superior to any other material, save continuous gum, which at least it rivals, and, as regards strength, far surpasses. Being translucent, it is calculated to win the admiration of the most fastidious; and being equally as light, if not more so, than rubber, it relieves us from that superfluous avoirdupois which attended cheoplastic substitutes; besides, possessing the quality of flexibility, to a very great extent, under a tight squeeze, it will recover itself better. And though it should have the faintest taste of camphor for a few days, is that not far preferable to rubber? Certainly it is pleasanter, and we think more wholesome.

*Manipulation.*—In this we are compelled to subject our lives to a perilous risk every time we make a plate or part of one. As an honest, industrious, patient, and forbearing class of benefactors, we have too long already periled our *brains* for our neighbors' *teeth!* Alas! if we could but realize how near we have often been to being *fragmented* into eternity!

*Apparatus.*—As at present made, the screw in the clamp-frame is hardly thick enough,—too easily bent. The flask should be so modified that one side *could not* close before the other, which is too liable to be the case at present. Can we not have a better flask? And I would also inquire why we could not use it as well in sheet form as in *unsuitable* plate form?—H. V. KAGEY, Arcola, Ill.

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# ORIGINAL COMMUNICATIONS.

## DENTAL PATHOLOGY AND THERAPEUTICS.

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[Entered according to act of Congress, in the year 1872, by J. Foster Flagg, D.D.S., in the Office of the Librarian of Congress at Washington.]

(Continued from page 413.)

SUPPURATION, or pus formation, we thus find to be another termination of inflammation, but it must be stated that this term applies only to the peculiar change effected in soft tissues. When hard tissues, such as bone and dentine, are subjected to this degree of irritation, a disintegration of structure takes place analogous to suppuration, it being broken down atom by atom; this is termed "caries," and the tissue thus devitalized is called "carious."

Pus is ordinarily classified into four varieties,—viz.:

Laudable or healthy pus.
Corrosive or unhealthy pus.
Sanious or bloody pus.
Thin or watery pus.

Laudable or healthy pus is a yellowish-white fluid of about the consistency of cream, with very little odor and a sweetish taste. I have spoken of the tendency of the blood corpuscles (both red and white) to adhere, when influenced by a sufficient irritant, and I must now mention that the peculiarity of pus corpuscles (dead exudative corpuscles) is the entire absence of any such disposition.

Laudable or healthy pus seems only possessed of power to act as an irritant, just as would any material devoid of vitality. If allowed to flow out continuously over healthy tissues, its effect is comparatively mild, although in time it of course would destroy it.

Corrosive or unhealthy pus, on the contrary, is always more markedly irritating, and sometimes excessively so. Its production results from some taint (poison), either constitutional or local,—such, for instance, as the pus of smallpox, which by application will produce disease possessing the characteristics of the disease which produced it. The tendency to the formation of unhealthy pus is generally exemplified in persons of impaired vitality, whether arising from improper food, unhealthy exhalations or influences, or inherited cachexia. This systemic condition is commonly designated *a purulent diathesis.*

Sanious or bloody pus, as the name would imply, refers to pus in which is found blood. Under ordinary circumstances this is regarded as an inferior kind of pus; it possesses a disagreeable odor, and is indicative of rapid disintegration of tissue; but it must be known and remembered that some admixture of blood with pus may be indicative of the first phase toward a re-establishment of healthy action. This is generally found after extensive formation of healthy pus in individuals belonging to the sthenic-plethoric class.

Thin or watery pus is indicative of adynamic complications, and is usually found in connection with either recent or long-continued chronic inflammation. Pus corpuscles in effused fluid denote positively a loss of vitality, and this condition once established, the quantity of pus is rapidly augmented. The fluid itself then becomes a solvent for the surrounding tissues, which are thus decomposed. Lesions of the capillaries of the part take place, but the open tubes are closed by the mentioned coagulable lymph, and thus a barrier to destruction is attempted. This is the only approach to a "pus generator," which indeed practically it is, but it cannot be regarded as at all analogous to a mucous or serous membrane. Nevertheless the continuous irritation produces continuous exudation, which in turn affords material for continuous suppuration.

I have said that the death of an atom from irritation formed a microscopic abscess. This I have noted in order that we may have a tangible commencement for what is usually regarded as an abscess. When, within the circle of effusion, an *appreciable* amount of pus has been produced, a degree of fluidity is found to exist, which, upon touching the part, gives the response known as "fluctuation." In general practice, the tips of one or more fingers of one or both hands are placed at opposite points of the circle of suppuration, and alternate pressure or tapping is employed. The sensation of fluid mobility being given, the presence of pus is diagnosed, and an appreciable "abscess" exists. This abscess, if pursuing its natural course, then continues to increase in size in whatsoever direction the least resistance (vital or mechanical) is offered, until it reaches either the exterior of the body or (generally) some cavity within, which communicates with the exterior, and thus affords relief by egress, or (sometimes) a serous cavity, which, having no outlet, produces dangerous increase of complication.

The approach to a surface is called "pointing," and is that yellowish circumscribed appearance, which is well known to almost every one, in cases of furuncle (boil), as "coming to a head." The abscess having "pointed," tissue continues to disintegrate until an opening is produced, and the accomplishment of this is termed "ulceration" or "breaking." If the origin of pus formation has been superficial, we have now what is termed an "ulcer;" but if the origin of pus formation has been more or less deep-seated, a canal has been made through which the pus is to be passed out. This is called a "fistula," and the ulceration of this establishes a "fistulous opening."

It has been intimated that ulceration or breaking generally affords almost immediate relief. This it does by the removal of that tension concomitant with which we find such exquisite suffering. This being the inevitable course which must be followed when suppuration is to terminate inflammation, it is obvious that so soon as we shall have learned (either experimentally or otherwise) that it is impossible to effect resolution in any given case, the proper treatment would be to hasten on the various steps which will ultimate in ulceration by every means at our command. In such cases, then, so far from aiming to render assistance to the inflamed part, with the view that it resist to the utmost the unusual condition of things existing within it, we rather endeavor to add to the destroying power, in order that its series of effects may be produced in the shortest possible length of time, that thus, its course being run, the injurious influence, which I have said *existing disease* was capable of exerting, might be removed.

With this end in view, the general practitioner employs, 1st, heat. There are various methods in common use for this application, such as hot-baths, warm poultices, heated cloths, warm-water bags, and, in short, any method which will retain in the part a high degree of temperature for some length of time. While these are recommended as most useful applications in general practice, I wish here to state that, as a practitioner of dentistry, I entirely ignore their employment upon the face, as they eminently tend toward the production of "external pointing," which should always be prevented, if at all possible. So soon as evidence of pus formation is perceived (fluctuation) about the jaws, in the substance of the lips, cheeks, chin, or neck, the operation is indicated of passing a concave bistoury from the inside of the mouth into the abscess, and thus permitting the free ingress of pus to the oral cavity. This it is particularly important for us to observe, for all scars —even the marks of "lancing," as it is termed—are conspicuous if upon the outside of the face or neck; and in cases of fistulous opening, the cure is almost invariably accompanied with disfiguration, and this frequently to a degree which is positively repugnant. I wish to impress here that such cases should be lanced cautiously, but freely, from the inside, even though the pus seems ready to escape externally at the slightest touch; and, having done this, remember the bearing of the hints already given in regard to position, gravitation, and support. If, in despite of all this, "nature" makes an external opening, we have at least done our duty.

The successful result of lancing an abscess is termed the "evacuation of pus."

Besides the application of actual heat, as ordinarily recognized, for the promotion of suppuration, we have, 2d, the general stimulant ointments, mixtures, etc , such as the various salves of rosin, beeswax, etc., the mixtures of soap and sugar, soap boiled in cream, etc., and, in our own direction, the popular roasted raisins and burnt figs; these, together with ginger, red pepper, etc., either ground or in the form of tinctures, are the medicaments which have sufficiently proved themselves reliable. In connection with these stimulants, we oftentimes employ some anodyne, such as hops, laudanum, tincture of aconite, chloroform, carbolic acid, etc., in order to relieve pain during the progress to the stage of sufficient suppuration. I use the term "sufficient" here, from the fact that an insufficient amount of pus is always detrimental. Thus, if an abscess be lanced, and its pus formed and forming be inadequate to maintain the integrity of the opening, healing of the wound takes place, and the pent-up pus becomes a source of aggravated irritation; and again, formative and other material, not pus, and yet so severely irritated as to render it impossible that it should be subservient to any other end than a gradual deterioration into pus, must be so stimulated as to promptly bring this about, and thus hasten the possibility of a return to health upon the part of adjacent structures. Thus it is that "evacuation" is not usually advisable immediately upon the formation of an appreciable abscess, if it be comparatively deep-seated, though prompt evacuation is desirable in superficial abscess. And in proportion as an abscess is deep-seated and extensive, and the tendency of the patient is toward adynamic and chronic inflammation, so gentle stimulation, after evacuation, should be persisted in, until the tissues announce practically that they are in a sufficiently physiological condition. The symptom of this is comparative normality of sensation, and the signs are comparative restoration of parts to their normal size, color, and firmness.

In cases where the visual test cannot be employed in recognition of progress of irritation toward abscess, the modifications of sensation are our only guide. These will generally be found quite accurate as previously given, and I have now to point out the diminution of pain which is usually concomitant with the beginning of pus formation. Acuteness of suffering and sensation of tension are markedly modified; a sense of relaxation or cessation of effort becomes apparent; the heat of the part seems less; and although the uneasiness is by no means removed, yet there is for a time much mitigation. These modifications continue until the pus itself becoming in turn an irritant of sufficient power to provoke the response of pain, that is again induced, together with all the other peculiarities of inflammation, possibly even more intense than at first. These then ordinarily continue until the discharge of pus takes place. In proportion as moderate suppuration is locally depressing, so is extensive suppuration depressing to the system generally; and thus we find in severe inflammatory and suppurating diseases this condition announcing itself by coldness and involuntary shivering.

### GANGRENE.

This term is applied to that termination of inflammation in which a part composed of *soft* tissue has been detached by suppurative demarkation from its nutrient connection with the whole, but to which time has not been given for the change of all the separated structures into components of pus. Putrefactive decomposition occurs in moist gangrene, giving to the dead tissue a most offensive odor. All vital attributes are lost, and the part assumes a livid appearance and changes color, becoming a mixed yellow, green, and bluish-black. In dry gangrene the part becomes black and hard, and instead of decomposition we find the tissue shrunken and shriveled, and possessing little odor. The separation of a portion of soft tissue from its original connections is termed "sloughing;" the portion thrown off is called the "slough."

### NECROSIS.

This term is applied to that termination of inflammation in which a part composed of *hard* tissue (osseous or dental) has been detached from nutrient connection with the whole, before becoming disintegrated. When this occurs, the devitalized structure is separated from adjacent tissue and thrown out, just as we have seen that any like irritant would be. The process by which this is done is called "exfoliation;" the dead portion, whether it be an entire bone or root of a tooth, or a part of either, is called a "sequestrum."

(To be continued.)

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## RETENTION OF A SET OF TEETH IN THE THROAT FOR FIFTEEN MONTHS.

BY J. H. BATCHELDER, SALEM, MASS.

A CURIOUS case has been brought to my notice, which excited considerable newspaper comment at the time of its occurrence, and which, were it not for the undoubted character of the gentleman concerned, would be thought to be incredible; the facts being substantially these:

One of my esteemed patients, Mr. P., about sixty-five years old, had for a number of years worn a partial upper set of teeth on gold plate, consisting of one molar and two bicuspids on each side, and one right lateral incisor, measuring two and one-eighth widest part by one and three-eighths narrow. They had never been secure in the mouth, and were of no use in mastication; and latterly were only worn at intervals to assist in articulation when reading or speaking as superintendent of Sabbath-school, or in public meeting.

The teeth were frequently carried by the patient in his pocket, or left in various places about the house, and at one time they were mislaid for a long time.

While sitting in his chair, about two years ago, Mr. P. was seized with a fit, upon recovering from which he experienced a sense of suffocation in the throat, accompanied by severe pain in swallowing, which his family physician, upon consultation, pronounced and treated as paralysis of the throat. He was unable to take any solid food, and continued to feel a constant uneasiness in his throat, attended with the difficulty in swallowing.

Some five weeks after the attack he asked for his teeth, and his wife, upon looking for them in their accustomed place, failed to find them; and then for the first time suspected—what afterward proved to be the fact—that he might have swallowed them, and that they were the cause of the trouble in his throat. She privately mentioned her suspicions to the physician, who ridiculed the idea as not only improbable, but impossible.

Fifteen months from the time he was seized with the fit,—during all which time he suffered from a cough, so painful that he at all times endeavored to suppress it,—he awoke one morning about two o'clock with an alarmingly suffocating sensation, and told his wife he could scarcely breathe. He soon recovered, and went to sleep; but was again awakened about two hours later by a violent attack of coughing, during which the lost teeth of fifteen months previous were thrown into his mouth. His wife had not suggested to him, nor had he suspected till that moment, that the teeth had any connection with the trouble in his throat; but upon their removal as first described he experienced sudden and complete relief.

It is hardly necessary to say with what a profound feeling of thankfulness, or with what a hearty relish, he sat down that morning and partook, for the first time for fifteen months, of a substantial and solid breakfast.

The facts here stated I had from my patient's own lips; and he is a gentleman of unquestioned character, and one whose words can be relied upon with perfect confidence.

# PROCEEDINGS OF DENTAL SOCIETIES.

## CALIFORNIA STATE DENTAL ASSOCIATION—THIRD ANNUAL SESSION.

The third annual session of the California State Dental Association convened in Mozart Hall, San Francisco, June 11th, 1872, President Dr. S. W. Dennis in the chair.

Dr. S. M. Harris, of Grass Valley; George McCowen, D.D.S., of Ukiah City; S. E. Knowles, M.D., D. M. Hughes, Henry C. Davis, William S. Davis, H. W. Calvert, of San Francisco, and Dr. N. Shrewsbury, of Santa Barbara, were admitted to membership.

The President delivered the annual address. He spoke in eloquent terms of the worthy efforts being made by the members of our association to place our profession side by side with the other learned professions; of the necessity of a thorough dental education, and of his regret that the several dental journals, which have done more for the advancement of the profession than any other medium, were so little read and supported by the profession. Every important professional truth should find its way into the journals, and the journals should find their way into every dentist's office.

In speaking of the "rubber dam," he said: "Too much cannot be said in praise of, and too much can never be done for, the inventor, Dr. S. C. Barnum, for his generous gift of it to the profession."

He believed there was no dentist worthy the name who did not owe much of his professional status to associated effort, and urged the necessity of harmonious intercourse, interchange of thought, and discussion.

William Dutch, D.D.S., Chairman of Committee on Operative Dentistry, made a very able written report, making especial reference to the latest improved materials and instruments for use in that department. Properly prepared cavities should be as free from undercuts as possible, all fissures thoroughly excavated, and orifices thoroughly smoothed to make perfect joints. Soft foils were not indispensable, yet most difficult operations can safely be undertaken with cohesive foils by the faithful operator: all kinds fail when used by the unfaithful. Of heavy foils, he preferred the *rolled gold* to the *beaten*; urged perseverance in the application of the *rubber dam*, as it will well repay for all time and trouble, as success is attained with it where failure is certain without it; considered the burring engines indispensable in the operating-room.

The paper was discussed at length by several members.

Dr. Dutch never sacrificed any portion of the tooth that could be saved; protects weak walls by lapping the gold over them, to prevent their being forced away by antagonizing teeth or other causes.

Dr. Knowles uses light foils—No. 4 principally—against frail walls, to avoid the difficulties of perfect adaptation incurred by the heavy foil,—the heavy leaving microscopic angles, creases, and crevices; generally finished up with heavy foils; always influenced by circumstances. He used retaining-pits very seldom; in contour filling, used thread-cut wire, anchored in the dentine, to build around,—sometimes as many as three in one tooth,—thus retaining fillings securely that could not be retained by the ordinary *pit;* always found space between the pulp and enamel of living teeth to insert without danger of injuring the pulp; advocates smooth folding of foil.

Dr. Roberts *crimps* his foil; is not afraid of injuring it by contact with *clean* fingers.

All agreed that fine points, frosted or slightly serrated, were the proper points for adhesive foils.

Drs. Prather and Plomteaux almost universally used the *broken points* spoken of in the March number of the *Missouri Dental Journal;* believed that none who tried them would use any other.

J. J. Menefee, D.D.S., read an essay on "The Pathology and Treatment of Alveolar Abscess."

Dr. Knowles made a verbal report on the subject of "The Causes of the Irregularities of the Teeth, and Best Methods of Correcting the same," exhibiting models of a large number of difficult cases that had been under his treatment; also the appliances used in their correction; conclusively showing that the most difficult cases can be bettered, if not entirely overcome, by skillful treatment and perseverance. He believes one of the principal causes of irregularity is that the child inherits the teeth of one parent and the jaws of the other. Much injury is likely to result by too rapidly moving the teeth when correcting irregularities. The mouth should be kept in as healthy condition as possible during the operation, by aid of such remedies as each case might demand.

Dr. Sichel read a report on "Dental Chemistry." He used as a substitute for red vermilion, in vulcanite, the following preparation: Dissolve oxide of iron in nitric acid; put in a crucible and anneal to smelting-heat; cool, pulverize, and mix with the rubber.

Dr. Austin made a verbal report on "Dental Pathology and Surgery."

Drs. Woodward, Bush, and Myers, of Committee on Mechanical Dentistry, each made written reports.

They could report no important improvements since last session; believed gold in skillful hands a *good and proper* base at all times, especially in partial sets; allow that continuous-gum work secures the most correct expression and articulation, and is very desirable for entire sets.

The reports were thoroughly discussed.

Dr. Cool generally used vulcanite, metal-lined. Lined all partial inferior sets with No. 18 or 19 aluminium. Plates thus lined never gave way.

Dr. Dennis believed any material improperly manipulated would produce irritation by mechanical action; believed rubber had been injurious to the profession on account of its wholesale use by incompetent and dishonest operators.

Dr. Plomteaux did not believe in condemning any material simply because quacks used it; would advocate the use of any material that had merit in it when properly manipulated.

Dr. Knowles had not the slightest doubt but that gold-work, when properly adjusted, would answer every purpose of mechanical dentistry; believed vulcanite *far* superior to any other cheap base extant, and that it had been a great blessing to the world. As to whether it has been a curse to the profession, we may entertain different opinions; does not believe there is a *well-authenticated* case on record of its noxious character, or injury to the mouth, when properly cured and manipulated.

[During the recess, Dr. Dutch gave a very interesting clinic at his office in presence of the members of the society. Operation, excavating and filling complicated cavity in superior molar.]

Drs. Plomteaux, Knowles, Knox, Menefee, and Younger were appointed a committee to report at next annual session what they may deem expedient regarding State legislation for the regulation and practice of dentistry. Dr. Dennis was added to the committee by vote of the society.

Dr. Knox, Chairman of the Committee on Dental Literature and Education, read a report, and Dr. Birge read an essay on the "Causes of Degeneracy of the Teeth."

Dr. Knox nominated Profs. J. Foster Flagg, D.D.S., of Philadelphia, William H. Atkinson, M.D., of New York, and Dr. George A. Mills, of Brooklyn, New York, as honorary members. Unanimously elected.

Dr. Crossett exhibited a pathological specimen, consisting of a fibrous tumor that had been recently removed from the mouth of a citizen of San Francisco.

Dr. Crossett, of Committee on Dental Pathology and Surgery, read an interesting paper.

Dr. Plomteaux read an essay on "Dentistry,—its History, Present Status, Claims, and Relations."

Committee on Publication moved the indefinite postponement of the subject referred to them at the last annual session regarding the publication of dental periodical under the auspices of the association. Carried.

Dr. Knox read an essay on "Dental Therapeutics."

Drs. Plomteaux, Knowles, and Knox were appointed to revise the Constitution, By-Laws, and Order of Business, and to prepare a Code of Ethics and Rules of Order for consideration at next annual session.

Dr. Dutch, delegate to American Dental Association, spoke at length of the recommendation of said body relative to formation of local societies and necessity of appropriate instructions to the profession generally.

A long and interesting discussion followed on the "Elevation and Education of the Profession, and the necessity of educating the public in the matter of the vital importance of paying more attention to the subject of dentistry."

Dr. Younger read an essay on "The Causes and Treatment of Loose Teeth." He generally removed the cause of loose teeth, and treated surrounding parts with tincture of iodine. He did not believe in the use of acids for removal of tartar; preferred fine instruments; if skillfully used, will not injure the periosteum.

Dr. Knowles preferred the chloride of zinc to tincture of iodine; believed it more of a stimulant to the soft parts.

Dr. Dennis's treatment was similar to Dr. Younger's; had frequently reproduced the gums by said treatment.

Dr. Dutch, on behalf of the San Francisco Dental Association, invited the State Association to dine with them at six o'clock P.M., to-morrow. Invitation accepted.

Corresponding Secretary Knox read letters from Professors Judd, Taft, and McQuillen.

Dr. Dennis read a very interesting paper, entitled "What makes Teeth Decay?"

[Dr. Knox gave clinics as per appointment.]

The following officers were elected for the ensuing year:

*President.*—Wm. Dutch, D.D.S., of San Francisco.

1*st Vice-President.*—J. J. Menefee, D.D.S., of San José.

2*d Vice-President.*—Dr. J. N. Myres, of Stockton.

3*d Vice-President.*—Dr. S. M. Harris, of Grass Valley.

*Corresponding Secretary.*—Henry E. Knox, D.D.S., of San Francisco.

*Recording Secretary.*—Dr. H. J. Plomteaux, of Woodland.

*Assistant Recording Secretary.*—Dr. L. G. Yates, of Centreville.

*Treasurer.*—Dr. C. C. Knowles, of San Francisco.

*Librarian.*—Dr. J. J. Birge, of San Francisco.

The newly-elected officers took their respective stations, and entered at once upon the discharge of their duties.

The *usual* vote of thanks was extended the retiring officers for efficient services during their term, especially to Ex-President Dennis, for his able and highly satisfactory administration.

Dr. Roberts was requested to read correspondence in his possession relative to the circumstances connected with the death of Mrs. O'Shaughnessy, under the administration of nitrous oxide gas, in New York City, March 20th, 1872.

The subject of "Anæsthetics and their Use" was thoroughly discussed, and the following resolution adopted as the sense of the association:

*Resolved*, That we as a body discountenance the indiscriminate use of anæsthetics by dentists for the extraction of teeth; and furthermore, that when such agents are necessary, their administration should not be undertaken by any one not thoroughly acquainted with their influence upon the patient, and having always at hand all the best known restorative agents.

By invitation of the association, Dr. Crossett read a paper on "Dental Literature and Education." The following resolution, *apropos* of the subject, was referred to the Committee on Dental Literature and Education, to be reported on at next annual session.

*Resolved*, That as a dental association we will secure the columns of some public print (if it can be done at a reasonable expense), by which all members of the association may have a medium through which information may be diffused among the mass of our population within this State; all articles for publication to be supervised by the Publication Committee.

Drs. S. E. Knowles, H. H. Pierson, S H. Roberts, and S. W. Dennis were elected delegates to the American Dental Association; and the President and Secretary were authorized to furnish certificates of election to such other members of the association as would attend, until the full number to which we are entitled shall be appointed.

On motion of Dr. Dennis, a committee of five was appointed to devise ways and means for securing a suitable testimonial to Dr. Barnum, for the free gift of his valuable invention — the *rubber dam* — to the profession.

Drs. Dennis, Austin, Knowles, Myres, and Menefee were appointed said committee. Dr. Dutch was added by vote of the society.

CLINICS.—By Dr. Dennis: Administration of nitrous oxide gas and extracting. By Dr. Knowles: Use of ether spray and extracting; also, filling posterior approximal cavity in superior bicuspid. By Dr. Sichel: Preparation of oxide of zinc.

The President appointed the following standing committees for the ensuing year:

*On Arrangements.*—Drs. Austin, Sichel, Klien, Myres, and Cogswell.

*On Publication.*—Drs. Dutch, Plomteaux (*ex officio*), Knox, Dennis, and Bunnell.

*On Operative Dentistry.*—Drs. Dennis, Pierson, and Woodward.

*On Dental Chemistry.*—Drs. C. C. Knowles, Prather, and Belle.

*On Dental Pathology and Surgery.*—Drs. Younger, S. E. Knowles, Harris, Kingsbury, and Wilbirt.

*On Mechanical Dentistry.*—Drs. Menefee, Spencer, McCowen, Bush, and Calvert.

*On Dental Literature and Education.*—Drs. Crossett, Cutlar, Yates, Eaton, and Lundborg.

*On Auditing.*—Drs. Birge, Kingsbury, and Cool.

It was resolved to hold the next annual session at San Francisco, commencing on the third Tuesday in May, 1873, at 10 o'clock A.M.

Dr. Shrewsbury recommended the following formula, which he claimed would entirely "paralyze the nerve in a very short time,"—the only originality claimed being the *proportions* of its ingredients. In many cases, when using the several agents for destroying nerves, the cauterizing gets the advance of the paralyzing element, which never occurs with this preparation.

℞.—Acidi arseniosi, gr. x;
Acidi tannici, gr. xv;
Morphiæ sulphatis, gr. xx;
Creasoti, gtt. x.

The President was allowed one month's time to select subjects for theses and make assignments for next annual session.

H. J. PLOMTEAUX, *Recording Secretary.*

## ILLINOIS STATE DENTAL SOCIETY.

(Continued from page 433.)

THE next subject was then taken up and opened by the reading of an essay by Dr. G. H. Cushing, of Chicago, on "What has the Public a right to expect from the Dentists at the Present Day?" of which the following is an imperfect synopsis:

As it is only when a proper understanding of the peculiar relations existing between the public and professional men is established, that any conclusions can be arrived at, it will probably be necessary to define the meaning of profession in the sense here applied, and wherein professional men differ from others who serve the public but are not called professional. A profession may be said to be a calling for which its followers are supposed to have particularly fitted themselves by long and extensive study, by means of which they have become reasonably well grounded in the great science which underlies their art, and which course of study is essential to qualify them for such calling, and is more extensive and special in its character than is required for other occupations not called professional. The distinctive difference between practitioners of our own specialty and those who follow vocations not called professional is, that the first profess to be able intelligently to treat certain diseases peculiar to a portion of the living body, and that the public are in most cases unable correctly to estimate the character of such operations and services rendered, while with almost every calling not professional men of ordinary intelligence can inform themselves of the quality of work which they procure to be done for them. Thus, we are not only called upon to treat for good or ill a portion of the living body, but we also accept a trust and confidence that is reposed in none but professional men.

Our profession has attracted to its ranks men from all classes and pursuits,—some drawn toward it from mere hope of gain; others lured by its attractions as affording such scope for mechanical ingenuity and skill; while occasionally men of more than ordinary ability and education were tempted into its folds by the promise it offered of rich and new fields of investigation and of the great beneficence to suffering humanity which its intelligent practice was sure to bring. From the influence of this latter class came the establishment of the first dental college at Baltimore, coincident with which began the periodical dental literature and the establishment of societies.

Thus, then, we have grown from a mere calling of thirty years ago, with no college, no literature, and no organization, to the dignity of a profession, with nine colleges, six or more periodicals, and some hundred or more societies, with also a very respectable literature in the line of special standard text-books, while the crowning act, which has marked our progress thus far, is to be found in the acknowledgment which Harvard University has accorded to us as a profession by engrafting upon the parent stem of her medical department ours as a recognized and honored specialty. This honor, the greatest yet conferred upon us, should stimulate every true man in the profession to renewed zeal and energy in the prosecution of his studies, and to more earnest endeavors to sustain a true professional character, in order that he may bring no reproach upon our name so honorably indorsed.

The public, then, have a right to demand of the dentist at the present day: First, that he should sustain a true professional character,—that is, one that commands the confidence of the public both as to one's professions and the integrity of his acts. Such a character presupposes the dignity due to a post of such great confidence, and can never stoop to make use of means for securing public favor, which, though perfectly justifiable and legitimate perhaps in matters of trade, would yet be dishonorable and unbecoming in a professional man. Such a character is found only in a man who is wedded to his profession, and who gives his whole soul to it, not merely for the sake of excelling or greater pecuniary gain, but chiefly because of the greater beneficence of the ends it will accomplish. A proper ambition to excel is an essential element toward reaching the highest degree of perfection; nor is the proper solicitude for pecuniary reward inconsistent with that character. But with all practitioners these should be secondary to the consideration of the greatest good to the patient.

Second, the public have a right to expect that the dentist of to-day shall be fully educated up to the highest standard which has been attained. . . . The colleges are for the beginner, and no new, young aspirant for professional honors should dare show himself before the public at the present day and claim to be even the humblest member of the profession without having gone through the preparatory training. Our periodical literature and our associations are alike open to young and old, and are the founts from which we must continually draw fresh inspiration. The man who neglects to read the one or to faithfully attend the others, falls far short of fulfilling his duty to the public, his profession, or himself.

Further, the public have a right to demand of the dentist that he apply himself to the careful study of disease, and that he shall be able, more or less, eventually to prevent or lessen disease rather than to repair its ravages. . . . The time is not far distant when the dentist will be expected by an intelligent public to be thoroughly grounded in the science of medicine as well as its collateral branches. Not otherwise can the highest ideal of our specialty be obtained.

How, then, are we prepared to answer this demand upon us? Let each answer for himself. And let him not think that, because his patients do not say so in so many words, they do not demand this as their right; that he is absolved from his obligations in the matter; for, so long as he has the consciousness within him (and who has not?) that these are the proper claims of his patrons, he leads no true professional life without using his best endeavors to fulfill these demands.

Debate being in order, Dr. Sherwood said he agreed perfectly with the positions taken, and believed them true and commendable.

President Willson called the attention of the members to several points in the paper. The question of how to advertise is a very perplexing one. The professional man is generally underrated; sees no reason why he should not be paid the same as the tradesman or banker. The skill and reputation for skill of the professional man are just as much his capital as stocks and bonds are to the banker. The matter of defining where the professional man begins and the tradesman ends, is in this aspect a difficult one.

Dr. Crouse. The public have a right to expect much of us; they pay more money to us, and place more confidence in us, than formerly. The children are intrusted to our care from early infancy up to the difficulties of maturity, and hence the public has a right to demand a greater scientific knowledge of us than of the tradesman. But aside from this scientific training, it has a right to expect a temperate life: a man is unfit for the proper, conscientious discharge of his duties towards his patients who indulges in excesses of any kind. The dentist should have system in his manipulations as well as in the intercourse with his patients. The community has a right to expect that he shall belong to, and attend the meetings of, some dental society, so that he can always give his patrons the full benefit of the advantages gained by the free interchange of opinions. He has himself derived more benefit from this than any other source. No one who secludes himself can enter into honorable competition for excellence. The action of Harvard University is to be highly appreciated, as it is a recognition of us as an honorable body of the medical profession, and this action will no doubt stimulate the other colleges to renewed exertion. But now, after having obtained that position, let us, by becoming hard workers and close students, and by proving ourselves worthy of this recognition, maintain it.

Dr. Honsinger. There have been thousands of teeth of children slaughtered through the ignorance of parents, by supposing the six-year-old molars to be deciduous; the public has a right to demand to be educated.

Dr. Hurtt, of Peoria. A card in a newspaper ought only to consist of name and place of business; it is admissible to have a card with fee-bill on one side and engagement blank on the reverse in private offices. Some dentists hold that it is proper to advertise to the public what they would say to their patients in private. This is objectionable, because we cannot explain, as we can personally in our private offices. Such advertisements of the reputable practitioner give credit to those of quacks and mountebanks, and detract from the dignity and reputation of our profession, and hence ought to be discountenanced.

Dr. Rathbun, Secretary of the Iowa State Society, was invited to the floor, made a few complimentary remarks, and extended an invitation to attend the meeting of that body next July, in Des Moines.

Prof. Judd said many outside of the profession had a misconception about advertising: it was commonly believed that the medical and dental codes of ethics forbid advertising. This is not so. There is no objection to the insertion of a man's name and place of business, etc. It is not advertising, but *improper* advertising, that is prohibited. When a man publishes that he has a peculiar and superior mode of performing an operation, or that he is the best operator and operates for less money than anybody else, he does that which is beyond the pale of honor or decency. He was much gratified with the course taken by Harvard University, and would be the last man to detract from its just deserts for its action in establishing a dental in conjunction with its medical school. Some years ago he conceived the idea that this was the proper way of establishing a dental school, and the Missouri Dental College was founded upon this principle, and at his inaugural address to the first graduating class of that college he showed how up to a certain point of divergence the studies should be the same for the student in the specialty of dentistry and in general medicine, and when that point was reached the dental student should branch off to his special studies as would the medical to those especially requisite to him. He has a letter still in his possession from a committee of the Massachusetts State Dental Society, asking for a plan of the model of the Missouri College. He complied with this request, and the plan was generally adopted in the formation of Harvard Dental College. Hence he thinks the honor of first recognition as a branch of medicine of our science is due to the St. Louis Medical College, an institution second to none west of Philadelphia. He has not attended this meeting or any other in the interest of his college, but thinks it is but justice to the Missouri Dental and St. Louis Medical College that the statement be made. He would not detract from the just merits of the Dental College of Harvard, as he believes it one of the first in the land, and is not sure but what it is destined to be the very first.

Dr. Sherwood has advertised from time to time; believes there is a proper way to do this; thinks he has enlightened the public by his advertisements. He has taken the position before the Chicago Society, that the manner of an advertisement may show whether the advertiser is a quack or a scientific man. Scientific men should advertise in order to prevent quacks from obtaining patronage.

Dr. Cushing rose to explain that in mentioning Harvard College especially, he did so with no intention of detracting from the St. Louis Medical College its just claim of priority in this direction. He was fully conscious that this institution was the first one to recognize the close relation of our calling to that of medicine by establishing a dental in conjunction with its medical school. But Harvard is more than a mere medical school or college; it is a university; and hence he used its action to show our recognized position among the professions.

Dr. A. W. Freeman, of Chicago, thought that to be recognized by so old and conservative an institution, an institution so slow to sanction innovations as Harvard University, where, aside from special training in medicine, jurisprudence and divinity are also taught, is a fact well worthy of especial mention. By this action students while attending their collegiate course can have in view still another scientific calling in which to perfect themselves without leaving their Alma Mater. He cared not who the man was, but he must at times feel his own littleness and want of knowledge. Physicians generally are not sufficiently educated upon the special diseases of the mouth. He cited three cases that came under his own observation recently in which patients were led to very nearly death's door by physicians, some quite eminent, simply for want of careful examination, and were finally restored to good health by a simple dental operation. In one of these instances a child, fourteen years old, had been treated for six months before the discovery was made that it was all caused by an alveolar abscess of a six-year molar with a fistulous opening. We ought to know more than the general practitioner about these things; thinks an advertisement that we have administered nitrous oxide gas ten thousand times, and that it is perfectly safe, is not scientific; has himself administered it many times, but never yet without apprehension, and in some cases not without the order of the attending physician. Our advertisements should mainly consist in a conscientious discharge of our duties, and a thorough devotion to our calling; and any man with these will soon get the position that rightfully belongs to him, without referring to newspaper puffs.

The hour set apart for the purpose of listening to Dr. Allport having already passed, he was invited to the floor.

He illustrated upon the blackboard his new theory as to the manner in which circulation, sensation, and nourishment are carried on between the dental pulp and the dentine; said that the manner in which these functions are performed had given rise to much controversy among physiologists, histologists, and microscopists; then proceeded to review the different theories that had been advocated, and stated that that of Tomes, showing myriads of fibrils to project from the periphery of the pulp into the dentinal tubuli, which fibrils are claimed by him as the means by which vitality and sensibility are maintained in the dentine, is at this time the one most generally accepted. He believed Tomes a most thorough and honest observer, but doubted the correctness of a cut contained in his "System of Dental Surgery," which represents these fibrils as protruding from the pulp to the dentine; believes the artist who drew this must have drawn largely on his imagination; the defects in which must have escaped Mr. Tomes's notice; but said, allowing the figure to be reasonably correct, its appearance can be accounted for upon other, and, he thought, better hypotheses than argued,—of that, however, he did not then propose to speak.

In giving his own ideas, Dr. Allport stated that he hoped to draw out thorough criticism, and wished that his ideas would be further investigated, as he was equally ready to be convinced that he was in error, or to have his theory confirmed by investigations of others—only that the truth is established.

His theory is, that the dentine derives its nourishment and sensation from one or more points, and this point or points being where there exists a connection or attachment between the pulp and the dentine.

This connection is always where dentification first begins, and bears to the dentine a similar relation as does the placenta to the fœtus, and that from this point vital action in the tooth is sustained. He uses the term placenta merely for want of a better one. Through this connection nutrition is carried from the pulp to the dentine, and sensation is transmitted from the dentine to the pulp and brain. The contents of the dentinal tubuli he believed elongated dentinal cells, endowed with nervous sensibility, anastomosing and connecting together throughout the dentine, with their origin and connection with the pulp at the points of first dentification. Thus, he said, if in a tooth with only one point of dentification or pulp attachment this point be cut off, sensation and nourishment of the dentine would probably cease,—with the exception of that which is derived from the alveolo-dental periosteum,—though the pulp itself may still be living. In teeth with more than one point of dentification or attachment, all the attachments must be severed before sensation is destroyed in the entire dentine; thus by severing the attachment at one point only of a molar, sensation will be destroyed in that section of the tooth only. He has exhibited specimens showing this attachment at the points of dentification to Drs. Judd, Wilson, Morrison, Cushing, Dean, and others.

Dr. Honsinger. How can amputation of part of the nerve, then, be performed without endangering the life of the tooth?

Dr. Allport. It would *endanger* the life of a tooth, but not make it certain. If, however, a piece be cut out of the side of the pulp, and the attachment with the dentine is not interfered with, the pulp might heal, and the vitality of the dentine still be preserved. A wounded pulp, under favorable circumstances, will heal nearly as readily as a wound in any part of the body.

Dr. Kennicott. Suppose the tooth becomes worn down by attrition and a secondary dentine deposited at this placental point, and in this attrition the fibres conveying sensation to this point become also obliterated, how would the life of the tooth be affected?

Dr. Allport. I should think the point of connection would recede the same as it does in the original dentification, unless the attrition was so rapid that nature could not adapt itself to the new condition; sees nothing in this that would necessarily refute this theory. Nature is not only an industrious but an ingenious worker.

Dr. Black. How is nutrition carried on throughout the whole dentinal substance?

Dr. Allport. If this theory is correct, from the point of cell attachment with the pulp through their anastomosing connections throughout the dentine.

Prof. Judd. This idea is certainly a new and a very ingenious one. The existence of this connection has never had this importance attached to it by any writer on histology before; and he does not think that it must necessarily follow that all nutrient matter must first pass this point, because of this connection between pulp and dentine. The fluid-oscillation theory has been long since exploded. He has been content to believe that there are filaments passing through the tubuli and anastomosing branches from the whole surface of the pulp. Whilst he was not prepared to condemn this new theory, he should be very slow to believe it until it has been more thoroughly investigated. It will require very strong proof to show that so careful and honest an observer as Tomes was mistaken. There is no need for reasoning upon what is demonstrable. He hopes histologists will investigate this matter more thoroughly, as it is capable of being demonstrated. He hoped that Dr. Allport would give to the profession an elaborate paper explaining his theory.

An essay on "Dental Fees" was then read by Dr. J. M. Hurtt, of Peoria, but, owing to the fact that the hour set apart for the election of officers had arrived, was not discussed.

The election of officers was then taken up, and resulted as follows:

*President.*—J. N. Crouse, Chicago.

*Vice-President.*—S. L. Edwards, Peoria.

*Secretary.*—C. R. E. Koch, Chicago.

*Treasurer.*—S. M. Sturgiss, Quincy.

*Librarian.*—J. M. Hurtt, Peoria.

*Executive Committee.*—Drs. O. Willson, Aurora; W. F. Magill, Rock Island; G. V. Black, Jacksonville; A. E. Matteson, Kewanee; and J. A. W. Davis, Mason City.

The newly-elected President, Dr. Crouse, was conducted to the chair, and made some brief remarks, thanking the society for the honor conferred.

Dr. Edwards, of Peoria, offered an amendment to the by-laws, making it obligatory upon members not to accept students for a less period than two years, nor without a written obligation on the part of the student to graduate at some dental college before assuming the responsibilities of practitionership.

This, under the rules, has to lie over until the next annual meeting.

The Secretary and Treasurer were constituted a publication committee, with power to condense and revise.

A vote of thanks was passed to Mr. S. R. Bingham, manager for S. S. White, for his many favors and courtesies, and especially for furnishing conveniences and room for clinics.

Resolutions relative to the death of J. W. Hendle, D.D.S., late of Peoria, were reported by the committee appointed for this purpose, and adopted.

The Committee on Infractions of the Code recommended that the

Secretary be instructed to notify Dr. C. W. Greenleaf, of Peoria, that charges have been preferred against him for violation of the Code of Ethics, in the matter of advertising, and to notify him to answer said charges at the next annual meeting.

This was accepted and adopted.

Dr. Kennicott offered an amendment similar to that of Dr. Edwards, only substituting "three" in place of "two" years for the least time for pupilage.

The Committee on Legislation was continued for another year, and Dr. G. V. Black appointed to fill the vacancy caused by the absence of Dr. C. Stoddard Smith, during such absence.

Adjourned to meet at Rock Island, the second Tuesday in May, 1873.

Charles R. E. Koch, *Secretary.*

## SUSQUEHANNA DENTAL ASSOCIATION.

The sixteenth semi-annual meeting of the Susquehanna Dental Association convened at Williamsport, May 15th, 1872. President J. D. Wingate, D.D.S., in the chair.

Dr. L. D. Runk, having been recommended by the Executive Committee, was, on motion, elected a member. Drs. Griffith, Blesh, and McClure were proposed for membership.

The following officers were elected for the ensuing year:

*President.*—H. H. Martin, D.D.S., Williamsport, Pa.
*Vice-President.*—Dr. L. D. Runk, Williamsport, Pa.
*Recording Secretary.*—G. W. Klump, D.D.S., Williamsport, Pa.
*Corresponding Secretary.*—Dr. Wm. H. Messimer, Williamsport, Pa.
*Treasurer.*—J. M. Barrett, D.D.S., Wilkesbarre, Pa.

Dr. Wingate, on retiring from the chair, complimented the society on its healthy condition; and Dr. Martin, on assuming it, thanked the society for the honor conferred, and called attention to the rapid advancement of the profession in this country.

On motion of Dr. Beck, the society donated fifty dollars for the purpose of testing the validity of the Cummings patent.

Dr. G. W. Klump read an essay on "The Exposure of the Dental Pulp and its Proper Treatment," taking the ground that many teeth were sacrificed by not receiving the time and care in their treatment necessary to produce the best results.

Dr. Beck read an essay; subject, "The Human Voice as connected with Artificial Teeth." He claimed that all artificial teeth, as inserted, were imperfect in color, general contour of features, and also in regard to proper enunciation. He spoke of the necessity of retaining the natural teeth, if not for the causes above enumerated, for the proper mastication of the food.

Dr. Runk had patients where not only he himself, but the husband and friends of patients, had seen marked improvement in the features and expression.

Dr. Newell had patients who wore artificial teeth a month without removing them, brushing them in the mouth the same as natural.

Dr. Dieffenbacher thinks many teeth might be saved which were sacrificed; yet he knew where he had improved the natural form of mouth with teeth, and said he himself could sing and enunciate as distinctly as he ever could with his natural organs.

Dr. Gerhart has somewhat modified his view in regard to artificial teeth, as also in regard to the decay of teeth. He has recently had opportunity to learn that the Japanese lived principally on rice and fish, and their teeth decay as much as our own. Also that artificial teeth have been worn in Japan from time immemorial, on atmospheric plates, made from wood and other material, and that those patients are much healthier while wearing them than when without them. These wooden teeth in Japan are made entirely for service, having scarcely any regard whatever for the appearance. The expense for these wooden masticators is quite trifling.

Dr. Gerhart read an essay, entitled "An Experiment and its Result." The case was one where a tooth had been knocked out from the mouth of a boy, and dried some twenty-four hours before he presented himself. The root was filled and polished, and soaked for about fifteen minutes in tepid water slightly impregnated with carbolic acid. The tooth was replaced, after washing out the socket, and retained with ligatures. The tooth has since been filled, and is doing well.

Dr. Parry related a case where a boy had the two central incisors knocked out with a bat, and they were lost among the leaves. A physician was sent for, the teeth finally procured, and he, in his eagerness to replace them, had reversed their positions; and they grew fast, and had since done splendid service.

The stated subject, "The Use of the File," was next taken up.

Dr. Beck thinks a file, if properly used, is a splendid instrument; but is not sure whether it is best to file apart or wedge apart. Filing is generally poorly done: teeth are left in a bad shape and rough. It requires much care to file properly; should make two V's,—one toward lingual surface and one toward gums.

Dr. Parry does not file as much as formerly, but separates by wedging; sometimes files after separating; knew a case which had been badly filed forty years ago, which he had watched for years, and yet, with all its roughness, seemed to resist decay.

Dr. Messimer uses the file, and could not well get along without it; endeavors to make a self-cleansing surface, but believes in less filing and better filling.

Dr. Rhoads has never been in favor of filing.

Dr. Wingate is somewhat prejudiced against filing; but has seen cases where the teeth had not been filed, and did not come in contact and were well fitted, and yet decayed around the fillings.

Dr. Barrett believes in taking medium ground.

Dr. Renn uses the file for two reasons,—one to get room, and another, to remove decay.

Dr. Gerhart makes no difference as to the results from the use of file or chisel; uses the latter freely, not because he likes it, but because he cannot help himself; saw a case where the teeth have been lost by the use of the file.

Dr. Dieffenbacher avoids cutting through the enamel if possible, and polishes well after filing.

"Extraction of Teeth," being the next stated subject, was discussed.

Dr. Beck. It is not the one who removes the greatest number of teeth in a given time, but the one that removes them with the least violence and injury to the surrounding parts, that is the best operator.

Dr. Parry prefers a rather slow, steady movement.

Dr. Wingate thinks the dentist often has the credit of breaking off a tooth when he pulls it off.

Dr. Renn believes in taking a deep hold; if necessary, to the apex of the root.

Dr. Dieffenbacher uses the alveola forceps a great deal, and likes them well.

Dr. Martin is glad to see a greater tendency to save teeth, and consequently less necessity for extraction.

By permission, "The Treatment of Diseased Gums" was taken up.

Dr. Dieffenbacher had a case where the teeth were loose, gums fetid, and last, with no disposition to heal. Treated by cutting off portions of the gum, lancing freely, and using extract of rhatany.

Dr. Messimer never had a case where after simply removing the tartar they did not heal up kindly.

Dr. Parry uses compound tincture of catechu.

Dr. Renn thinks the disease is often caused by salivation, and requires constitutional treatment.

Dr. McClure thinks the disease is usually caused by calculi, and uses as a wash tincture of kino and myrrh in equal proportions.

Dr. Klump, after cleaning properly, lances freely; uses a mild astringent or stimulating wash; has used a weak solution of chloride of zinc; has discarded the use of myrrh on account of its gummy deposits, as well as because it discolors the teeth.

Dr. Messimer never saw any bad effects from myrrh.

Dr. Parry thinks he has seen such effects as those mentioned by Dr. Klump.

### Dental Tumors.

Dr. Klump has had several cases where the gums have a swollen, turgid, purplish appearance between perhaps only two teeth, while the rest of the gums are seemingly entirely healthy; seems to be the incipient formation of a tumor, and yet it has that swollen appearance, extending sometimes below the gums for months without any apparent change; has noticed it where teeth had been filed, and thinks irritation of filing, wedging, etc. usually causes them.

Dr. Parry had several such cases, and usually cauterizes the surface; has used the actual cautery.

Dr. Martin had seen such cases. Thinks they are usually caused by injuring the periosteum of the teeth in some way. Thinks great care is necessary in filing and other operations.

Drs. Klump, Renn, Sticker, and Parry were appointed delegates to the State Dental Society, and Drs. Messimer, Martin, Rhoads, Barrett, and Beck, to the American Dental Association.

Essayists for semi-annual meeting, Drs. Martin, Gerhart, Barrett. For the annual meeting, Wingate, Sticker, and Parry.

Subjects to be discussed at next meeting: "Dental Implements and Appliances," "Saliva, and Best Means of keeping the Mouth dry."

On motion, Dr. Beck was requested to deliver a public address before the Susquehanna Dental Association at the next meeting.

On motion, adjourned to meet in Lock Haven, on Wednesday, November 12th, 1872.

G. W. Klump, D.D.S., *Secretary.*

## NEW JERSEY STATE DENTAL SOCIETY.

The second annual meeting of this society was held in the United States Hotel, at Long Branch, on Tuesday, July 9th, 1872.

The following-named gentlemen were elected members:

Drs. F. C. Barlow and J. C. McNaughton, Jersey City; A. A. Peirce, Elizabeth; B. F. Borden, C. H. White, and Charles Hubbard, Red Bank; Josiah Geran, Mattawan.

The society proceeded to the election of officers for the ensuing year. Dr. A. M. Kingsley, of Elizabeth, President; Dr. W. H. Dibble, of Elizabeth, Vice-President; Dr. L. H. DeLange, of Bordentown, Recording and Corresponding Secretary; Dr. George C. Brown, of Mount Holly, Treasurer; Drs. W. Pinney, C. Dippoldt, E. F. Hanks, C. S. Stockton, and J. W. Cosad, Executive Committee.

Dr. Reading, of Trenton, explained why the bill to regulate the practice of dentistry in this State failed to become a law.

A new committee was appointed (viz., Dr. DeLange, Dr. Brown, and Dr. Dippoldt) to make another effort to have the bill passed by the next legislature.

The same committee was appointed to have this society incorporated.

Clinic, by Dr. W. H. Dibble, of Elizabeth. Filling, with gold, anterior approximal surface of left superior first molar; using Dr. Varney's points, steel mallet, and Morrison's burring engine.

The Executive Committee reported the following subjects for discussion:

"The Use and Abuse of the Mallet," "Is it possible to Bleach a Tooth after Discoloration?" "Oxychloride of Zinc as a Capping for Exposed Nerves, and Fang-Filling," "The Relative Merits of the Various Preparations of Gold and Other Materials for Filling Teeth," "Is there any Experience in the Use of Phosphate of Lime, and in what form is it most suitably administered?" "Mechanical Dentistry."

Dr. Dibble approved of the mallet, when properly used.

Dr. Heath extracted a tooth which had been filled with the mallet, which caused absorption of the fangs.

Dr. Stockton spoke in favor of the mallet, but had fillings in his teeth that were placed there over twenty years ago by hand-pressure.

Dr. Kingsley preferred the automatic mallet: had more use of his left hand, and required no assistant.

Dr. DeLange used the mallet, and hand-pressure; preferred Butler's points and mallet. For bleaching teeth, uses various preparations,—tincture of iodine, carbolic acid, tannin, oxalic acid, oxychloride of zinc, lime, and spirits of ammonia.

Dr. Dibble's treatment is similar to Dr. DeLange's.

Dr. Hanks uses oxychloride of zinc in most cases for capping the nerve, where there is not much inflammation.

Dr. Stockton uses it in certain cases, but prefers to destroy the nerve rather than take the risk.

Dr. DeLange uses it in nearly all cases for fang-filling.

Dr. Peirce uses it for fang-filling, in connection with tannic acid.

Dr. DeLange prefers the narcotic spray where there is much inflammation of the nerves of the front teeth; congeals and extracts the nerve, and fills the fang and crown at once; never has had a failure.

Dr. DeLange demonstrated his method of inserting temporary partial sets of teeth, immediately after extraction.

Dr. Dibble makes a large reservoir, in making up cases, with Weston's new metal.

Dr. Brown uses two parts of sulphuric acid and one part of nitric acid for taking the plaster from rubber cases; allows it to remain in the solution about half a minute, and immediately washes it in a solution of common washing-soda, and then in clear water; sprinkles French chalk over the palatine surface of a plate, to detect rocking.

Dr. DeLange uses glycerin, in the place of oil or soap, for polishing plates.

Dr. Stockton removes the carbon from artificial teeth by washing them in chloroform.

Dr. Dibble keeps plaster of Paris exposed to the air for taking impressions of the mouth for full arches.

Dr. Kingsley explained his method of building up teeth on plates for proper mastication.

Dr. Stockton read an essay on the "Phosphate of Lime."

Dr. Pinney, of Newark, was selected to demonstrate before the society at our next annual meeting.

Dr. Louis Jack, of Philadelphia, and Dr. Champlain, of Red Bank, N. J., were elected honorary members of this society.

Dr. Louis Jack was invited to demonstrate, at our next annual meeting, his method of filling a tooth on the approximal surface.

The following members were elected delegates to the American Dental Association: Drs. E. Reading, A. A. Peirce, A. W. Kingsley, George C. Brown, Leo H. DeLange, C. S. Stockton, W. Pinney, and W. H. Dibble.

Long Branch was selected as our next place of meeting.

On motion, the following resolutions were unanimously adopted:

"*Resolved*, That the thanks of the New Jersey State Dental Society be, and are hereby, extended to Dr. S. S. White, of Philadelphia, for the great interest he has manifested in the defense of the 'Gardner suit,' lately decided by the United States Supreme Court.

"*Resolved*, That the aid of this society be proffered to Dr. White in any future litigation of the Cummings patent."

Adjourned.

LEO H. DELANGE,
*Recording and Corresponding Secretary.*

## MINNESOTA DENTAL ASSOCIATION.

PURSUANT to notice, the dentists of Minnesota met in convention at Ingersoll Hall, St. Paul, June 26th, 1872, for the purpose of organizing a State dental association. Delegates were present from St. Paul, Minneapolis, Stillwater, Winona, Red Wing, Faribault, Hastings, and other points in the State.

Dr. C. DeMontreville was elected temporary President, and Dr. S. A. Beecher, Secretary.

Upon taking the chair, Dr. DeMontreville addressed the convention.

Dr. S. A. Beecher, of St. Paul, Dr. A. L. Bausman, of Minneapolis, and Dr. B. Merry, of Stillwater, were appointed a committee to report a Constitution and By-Laws for the consideration of the convention.

The committee reported a Constitution, By-Laws, and Code of

Ethics, for the organization and government of the "Minnesota State Dental Association," which was adopted.

The following then signed the Constitution:

M. B. Patterson, J. C. Merritt, D. C. Price, J. H. Bryant, S. A. Beecher, C. DeMontreville, and G. O. Lawton, St. Paul; A. F. Smith, M. D. Stoneman, J. A. Bowman, and R. S. Calkins, Minneapolis; B. B. Merry, Stillwater; N. R. Hurd, and J. R. Hunt, Faribault; E. Pray, Young America; J. M. Williams, Rochester.

Drs. Williams, of Rochester, Merritt, of St. Paul, and Stoneman, of Stillwater, were appointed to name officers, and made the following report, which was adopted:

*President.*—D. C. Price, St. Paul.

*Vice-President.*—J. A. Bowman, Minneapolis.

*Treasurer.*—S. A. Beecher, St. Paul.

*Secretary.*—C. DeMontreville, St. Paul.

Dr. Price took the chair, returned thanks, and announced the following committees:

*Executive Committee.*—B. G. Merry, Stillwater; J. H. Bryant, St. Paul; and the President *ex officio.*

*Committee on Membership.*—A. L. Bausman, Minneapolis; N. R. Hurd, Faribault.

The association adjourned to meet at Minneapolis on the last Wednesday in June, 1873.

## MASSACHUSETTS DENTAL SOCIETY.

THE annual meeting of this society was held in their hall, 36 Temple Place, Boston, May 23d, 1872, President Dr. A. A. Cook in the chair.

The following gentlemen were elected officers for the ensuing year:

*President.*—Dr. J. H. Batchelder, of Salem.

1*st Vice-President.*—G. T. Moffatt, M.D., of Boston.

2*d Vice-President.*—S. J. McDougall, M.D., of Boston.

*Recording Secretary.*—C. Wilson, D.M.D., of Boston.

*Corresponding Secretary.*—L. D. Shepard, D.D.S., of Boston.

*Treasurer.*—E. Page, D.M.D., of Charlestown.

*Librarian.*—G. F. Grant, D.M.D., of Boston.

*Microscopist.*—T. B. Hitchcock, M.D., of Boston.

*Executive Committee.*—L. D. Shepard, D.D.S., I. T. Wetherbee, D.D.S., Dr. E. Blake, and S. J. McDougall, M.D., of Boston; E. Page, D.M.D., of Charlestown.

J. T. Codman, D.M.D., of Boston, was chosen orator for the next annual meeting.

Essays were called for, and were read, as follows: "On Transplanting Teeth, when indicated," by Dr. Waters. "On the Value and Use of Mouth Mirrors," by Dr. L. D. Shepard. "On Sugar Candies and their Effects on the Teeth," by Dr. J. T. Codman.

Dr. Batchelder exhibited a gold case containing seven teeth, which one of his patients swallowed, and which remained in his throat fifteen months.

Dr. A. J. Smith read an essay on the "Health of the Dentist."

Dr. Chandler proposed as a question for discussion at the next regular meeting, "The Mallet: What are we doing with it?" and Dr. Chandler was invited to write an essay on the same.

Several dental instruments were exhibited, among which were a new form for tongue-holder and duct-compressor, an air-syringe for removing particles of matter from cavities while excavating, and Dr. Mack's instruments for securing fillings by delicate gold screws.

Adjourned.

C. Wilson, D.M.D., *Recording Secretary.*

## AMERICAN ACADEMY OF DENTAL SCIENCE.

At a special meeting of the American Academy of Dental Science, convened in Boston, July 9th, 1872, the following resolutions were adopted:

*Whereas*, It has pleased Almighty God to remove from among us Elisha T. Wilson, M.D., the first President and late Vice-President of the American Academy of Dental Science; it is therefore

*Resolved*, That this Academy has received with sincere sorrow the painful intelligence of the decease of our highly-esteemed friend and associate.

*Resolved*, That by the death of Dr. Wilson the profession of dentistry has lost one of its most eminent practitioners, Boston one of its most useful citizens, and our Academy one of its most valued and energetic members; and that we shall always retain the warmest recollections of his many excellencies of character, his kindness of heart, and his generous hospitality.

*Resolved*, That a copy of these resolutions be presented to the family of the deceased, and that we tender to them our deep sympathy in their great bereavement and sorrow.

Also, that these resolutions be published in the Dental Cosmos and *American Journal of Dental Science.*

Joshua Tucker,
Jacob L. Williams, } *Committee.*
Edward N. Harris,

The fifth annual meeting of the American Academy of Dental Science will be held in Boston on Monday, September 30th, 1872, at eleven o'clock A.M.

The annual address will be delivered by Prof. P. H. Austen, of Baltimore.

E. N. Harris, D.D.S.,
*Cor. Secretary, Boston, Mass.*

# CLINICAL REPORTS.

## UNIVERSITY OF PENNSYLVANIA.

Service of James E. Garretson, M.D.,
LECTURER ON SURGICAL DISEASES OF THE MOUTH.

REPORTED BY DE FORREST WILLARD, M.D.

### Plastic Surgery of the Lips.

Gentlemen,—The sadly-disfigured person before you must certainly awaken your interest and compel the question, Can such deformity be relieved? She is, as you have probably prejudged, the victim of syphilis, a disease contracted some years since, and which pursued its destructive ravages until it left her with but remnants of either hard or soft parts in the upper maxillary and nasal regions. The upper lip, the cartilages of the nose, portions of nasal, turbinate, vomer, superior maxillary, and palate bones have all disappeared, and only a repulsive opening exists in their place.

We are informed that the course of the disease was rapid and uncontrollable (Query: Was it assisted by too large doses of mercury?); but all destructive action has now ceased, and the parts are thoroughly healed. The malady has spent its fury, and she is cured so far as any one is capable of being cured of syphilis. While the disease is progressing, every effort should be directed to its arrest, no operative interferences being justifiable until months after all cessation of inflammatory or other symptoms, and even then only after a long period of constitutional treatment and preparation. The health of the patient before us is now good, her appetite excellent, and all her functions are properly performed. Everything being in readiness, then, let us study her case. A definite plan of action must be decided upon, laid out, and followed throughout the operation.

She is minus both nose and upper lip. (*Vide* Fig. 1.) Can we replace them? Let us consider only the lip at present, leaving the nose for a subsequent day. Our artistic skill must now be summoned, for this is not an ordinary piece of patchwork; but *live* tissue is to be inserted into a gap, and, what is even more difficult, this piece has to be made to continue to live. It must, then, first, be healthy tissue, and second, be so contiguous as to permit of its being brought easily over into its new position. Can we obtain such a flap from these cheeks? Yes. But what are we to do in future when desiring to cover in the nose? Take tissue from the forehead.

We decide, then, upon the cheeks. What other considerations have we? The flap must have a good, broad base looking toward an artery of supply; it must be of sufficient size and of the proper shape to allow it easily to meet its fellow from the opposite side, at the median line; it must be cut so that raw surfaces shall come in contact when brought into the new position.

Autoplasty, then, as you see, necessitates mechanical, artistic, and surgical skill,—either lacking would only render bad worse.

General principles only can be taught you. Each special case will require special study, but many useful hints may be gained by a study of all the illustrations which you will see in text-books upon the subject.

In the case before us we will take a flap from either side. These must be of sufficient length to meet at the centre; their bases must look downward and outward, and their apices upward and inward. An incision commencing, then, on either side at about the normal position of the wing of the nose, and carried upward and outward for about one and a quarter inches in the direction of the external palpebral canthus, will give us abundant width to allow for shrinkage. From this point the cut must be about one and three-quarter inches downward and outward toward the angle of the lower jaw, stopping before the Stenonian duct or facial artery is injured.

I take a pen and mark these lines upon either side, in ink—a procedure which is always wise in these plastic operations, since a single false cut—easily made when the parts are covered with blood—might entirely defeat success. Now you can plainly see that when I dissect up these flaps, and bring the upper angles (which were originally just beneath the infra-orbital foramen) down and approximate them beneath the nose, the two truncated apices of the flaps will be brought in apposition at the median line, thus forming a very respectable lip. The edge which forms the free border of the lip is but partly raw, since it consists largely of cicatricial tissue, and, even where it does not, it can be prevented from adhering to the surrounding parts by pinning the mucous membrane over upon the skin, thus making an excellent margin.

I now make the incisions in the lines marked out, taking care not to injure the nutrient artery; and, as I dissect up and bring over the flaps, you will see that they are not tense, but fit into position nicely. I place the first pin just beneath the nose, another at the free margin, and a third intermediately; then apply the usual figure-of-8 suture. The hemorrhage is considerable, but soon ceases.

Now, what have we left? A triangular, raw, uncovered space on either side of the nose. (*Vide* Fig. 2, left side.) But that is easily closed by two pins (*vide* Fig. 2, right side), with the exception of a slight angle near the nose, which will be left to granulate. The structures constituting the cheeks are very movable, and you will often be surprised to see how small a cicatrix will remain after the removal of a considerable amount of tissue.

I am very sanguine in the hope of good union, which, if satisfactorily obtained, will add greatly to her personal appearance, and protect the mucous membrane of the oral cavity from irritating external influences.

Fig. 1.

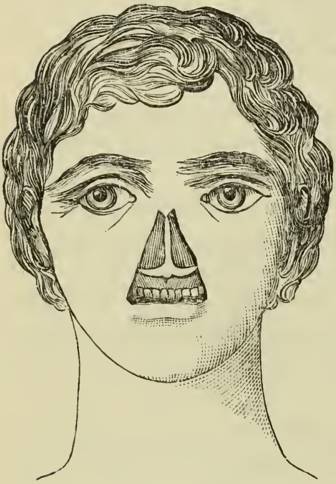
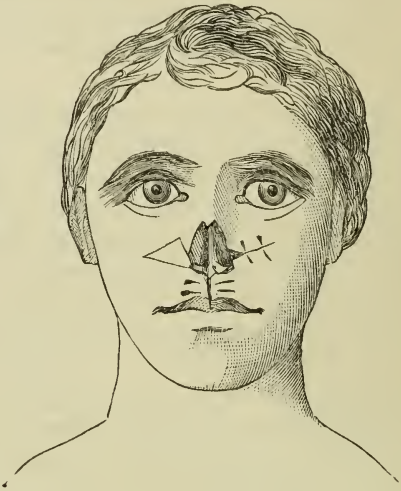


Fig. 2.



If we can succeed in accomplishing this happy result, and afterward give her a good nasal organ in addition, we shall do much to render her life less miserable.

## Epithelioma.

The next case is that of a patient whom you have frequently seen at this clinic. He first came to us some five months since, with an epithelioma of the upper lip. You have remarked the various features of treatment which have been pursued in his case. It has been soothed, stimulated, and cauterized; it has received both gentle and active treatment, and yet you have watched it constantly progressing in the face of every endeavor for its arrest.

You all know my views upon epithelioma, so that I need not dwell upon them. It is a disease primarily of local signification, but may become constitutional by secondary involvement.

I believe his case to be yet of but local import; but, as the sore refuses to heal, and has implicated with its induration almost the entire lip, it is now fully time that it should be removed by the knife. The ulcerated portion is pasty, and grayish in its appearance; the edges steep and irregular.

For its removal an extensive operation will be necessary, since a large portion of the upper lip will require excision,—so large a portion, in fact, that the remaining structures will not be sufficient to cover the gap, and we shall consequently be obliged to resort to the same source of supply as in the preceding case.

We will first, then, take away all the diseased tissue, and then cut two flaps from the cheeks in the same manner as in the last case, simply making them a little smaller, since the space to be recovered is not so great.

Once made, they are to be dissected up and slipped inward so as to meet at the median line, where pin-sutures will be employed to retain them in position, assisted by narrow adhesive strips. The places uncovered at the sides of the nose can be easily brought together, so that but a small scar will remain.

As the man's condition is not good, we will give him twenty drops tinct. ferri chloridi every four hours throughout the treatment of the case, with generous diet, milk, beef-tea, etc. He has a constitution which is prone to take on inflammation of the erysipelatous type; but I think that frequent painting of the part with the following mixture will effectually guard against any such complication:

℞.—Quin. Sulph., gr. xv;
Tr. Cinchon. Comp., ℥ij;
Tr. Ferri Chloridi, ʒij. M.
Sig. Apply locally.

### EPITHELIOMA.

The next case is also one of epithelioma, but differently situated, being upon the lower lip instead of the upper. The patient informs us that she had a cancer (epithelial) removed from this spot some eight years ago, and that it has shown no evidences of return until about four months since, when a small indurated spot appeared, which progressed to ulceration and great thickening, as you perceive. (*Vide* Fig. 3.)

The disease extends so far into the lip that, in order to carry the knife well outside all the implicated tissues, it will be necessary to remove nearly one-half the lower lip, a portion of the upper, and the whole angle. Now, this will involve such loss of tissue as to necessitate its replacement. How shall this be accomplished? Sit down and place before your eyes a normal lip, then imagine it with a large piece removed, then calculate how much tissue you will need, and where you shall obtain it.

I will mark upon this diagram a plan of the incisions which I think will best fulfill the requirements of the case. (*Vide* Fig. 3.)* The upper lines are the ones which are for the purpose of removing the morbid growth; the lower ones for the forming of a flap, which, when dissected up, shall fit up to the normal central portion of the lip, leaving a bare spot to granulate upon the side of the chin. Care should be taken to have the flap of sufficient size to allow for contraction by cicatrization, else evulsion might occur.

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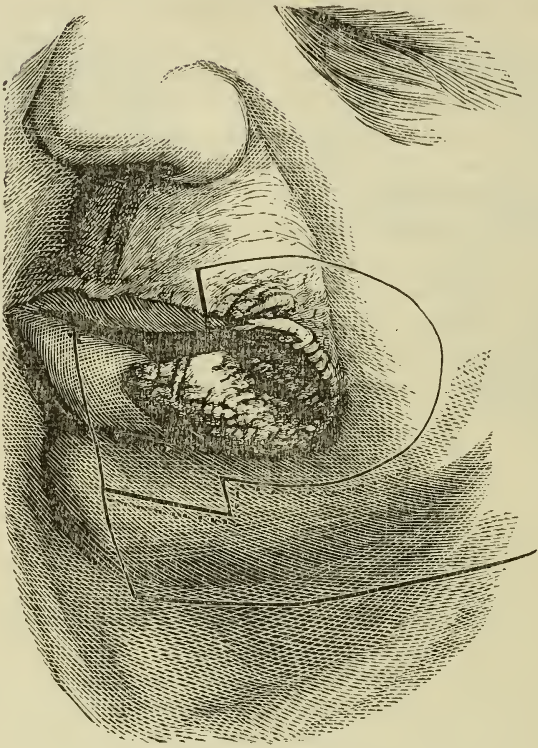
* For the use of these cuts, which are from Dr. Garretson's forthcoming work, —"A System of Oral Surgery,"—we are indebted to the politeness of the publishers, J. B. Lippincott & Co.

Fig. 3.



But will this flap live? I think so, when we see that the inferior coronary and labial artery, or at least the latter, will still remain.

The study of the subject of transplantation of tissue has recently received fresh impetus from the experiments which have been made in the direction of attempts to compel independent islands of skin to unite with and live upon an ulcerated surface without the support of a pedicle. The nutrition of such a piece of transplanted skin, and, in fact, the *immediate union* of any transplanted flap, necessitates the rapid passage of vessels across the intervening space and the production of but little intermediate tissue. The formation of new blood-vessels in tissue is a subject so wonderful that it is well worthy of careful study. At some point on an already existing vessel the wall dilates; a pouch is formed; it deepens, and a blind canal results; at the same time, at a point not far distant from the first, a similar action is going on,—one diverticulum projects backward, the other forward, each taking its course in the direction of the new tissue to be nourished or formed; they extend, meet; the intervening walls which closed their ends are removed, and a continuous arch is formed, through which the blood freely courses. Thus at every point these little offshoots or arms, microscopic in size, unite with similar ones from the same or adjoining vessels, until multitudes of little arches and mutual anastomoses are formed, and nutrition is accomplished, every step being taken with precision, regularity, and dispatch. Thus marvelous are the actions constantly taking place in our bodies to subserve the process of repair; and although man's capacity for the reproduction of lost tissue is infinitely less than in the lower beings, yet all of us must frequently be astonished at the extent of reparative power exhibited by nature. As we descend the scale to creatures incapable of self-defense or self-preservation, this provision for the sustenance of existence becomes more marked, until, in protozoa, self-mutilation is but a common occurrence in case of danger, repair being so active that a short time suffices to replace any member which may thus have been cast off. Man, endowed with powers of reasoning and defense, requires such provision to a correspondingly less degree, and in him we find that repair exists in its least expression; still, with our advancing knowledge, we may hope to assist nature even in this process; as exampled, for instance, in the reproduction of bone from rescued periosteum.

The woman is now etherized, and I make the incisions as marked out. The bleeding is controlled by the hands of assistants until the flap is brought up and pinned and sutured in its place, when no further difficulty is experienced. No ligatures are necessary. I almost invariably use the ordinary harelip suture in all operations upon the face. The sides of the raw, uncovered spot upon the side of the chin I draw as nearly together as possible, leaving the remainder to granulate.

[The cases all progressed most satisfactorily. The dressings were varied according to circumstances. As soon as hemorrhage ceased (and in no case was it troublesome), narrow adhesive strips were applied, and those portions of the flaps which seemed imperfectly nourished were supplied with artificial heat. Consequently, no sloughing occurred, but in each case union was speedy and complete, the pins being removed upon the third or fourth day. When inflammatory symptoms arose, they were subdued by lotions of lead-water and laudanum,—in the man's case the additional treatment already indicated being carried out. Strong, nutritious diet and moderate stimulation were employed.

Nature has now rounded off all irregularities and projections, so that in the two latter cases a year's time will doubtless show the lips to be but little deformed. In the first case the beneficial results will not be marked until the completion of the operation upon the nose.—De F. W.]

# EDITORIAL.

## THE HORACE WELLS TESTIMONIAL FUND.

A systematic effort is at last—better late than never—being made to render tardy justice to the memory of the late Horace Wells. The movement takes the commendable form of benefaction to the widow and children.

Twenty-eight years have elapsed since, through Horace Wells, the inestimable boon of anæsthesia was conferred upon the world. His death occurring before his claim to this high honor was fully established, allowed the opportunity to others of seeking to deprive him of it,—his life having doubtless been shortened and his means exhausted in the effort to overcome the opposition to the recognition of the priceless value of his discovery. He is honorably entitled to be ranked as one of the world's benefactors, and as such to be held in everlasting remembrance.

The credit too often awarded him is only for the application for anæsthetic purposes of nitrous oxide gas; but it must not be forgotten that this was the commencement of the application as such of any anæsthetic, and that to him belongs, as growing out of his suggestions in reference to nitrous oxide, the practical discovery of the whole idea of producing insensibility to pain during surgical operations.

The aggregate amount of suffering which has thus been prevented no words can express, no mind can conceive. Justice demands that the acknowledgment which it is yet possible to make—the one of all others which, could he be permitted to speak, would doubtless be his choice—be made speedily.

It is not to the credit of America that already—in advance of any effort here—the work has been inaugurated in England and in Canada; nor is it to the credit of the dental profession, to which Dr. Wells belonged, that the medical profession has been ahead in maturing and putting into successful operation a movement looking to the same end.

But, though so long delayed, the obligation is not lessened. The natural sense of justice demands that the loved ones of him who has done so much to lighten the load of human misery shall be lifted above the want which probably would have been unknown to them but for the fact that their natural protector had given his time and talents to the unselfish service of mankind.

The appeal is one that should touch every heart and inspire to generous response.

We hope within a short time to be able to announce, as the result of an almost universal response by the profession throughout the country, an aggregate subscription that will be as creditable to the donors as it will be grateful to the recipients. Let no one hesitate to respond because of inability to give largely. There are but few who could not spare five dollars, but, while many are able and will doubtless be willing to do more, the committee will be glad to receive subscriptions of one dollar.

We print the appeal of the committee:

### Appeal in Behalf of the Wells National Testimonial Fund.

"It is proposed to raise a fund for the benefit of the family of the late Horace Wells, the discoverer of the principle of Anæsthesia, or the prevention of pain in surgical and dental operations, by the inhalation of nitrous oxide gas and other agents.

"Dr. Wells was a benefactor to the world.

"He conferred upon it the greatest physical boon, in the prevention of pain in severe operations in general surgery and obstetrics, as well as in minor operations in dentistry. Without its aid, many of them would be impossible, while with it they have not only been rendered possible, but, directly and indirectly, tens of thousands of lives, as well as an untold amount of mental and physical anguish, have been saved. To accomplish this, his own health, life, and fortune were sacrificed in his zeal for the perfection of his great discovery, and his early death left those whom he loved and cherished unprovided with even the most moderate means of support.

"This appeal is therefore made, in behalf of *his family*, to the members of the dental profession, as well as to private citizens, benefited directly or indirectly by his great discovery, to aid in making up a Testimonial Fund as an act of tardy justice to the memory of an American citizen who deserves to rank with Morse and Fulton among the world's benefactors, and whose claim to everlasting and grateful remembrance is enhanced by the fact that *he loved his fellow-man better than himself.*

"We would, therefore, urge the dental profession to embrace this opportunity, and generously show their appreciation of Horace Wells and his discovery, and of the immense benefit it has been to them, by contributing to this fund.

"Subscriptions may be sent direct to the Treasurer of the Fund, to whom all contributions will be paid over.

"Louis Jack, D.D.S., Daniel Neal, D.D.S., George T. Barker, D.D.S., George T. Moffat, M.D., N. W. Hawes, M.D., Thomas B. Hitchcock, M.D., William H. Allen, Frank Abbott, M.D., J. H. McQuillen, D.D.S., E. Wildman, D D S., D. D. Smith, D.D.S., Thomas H. Chandler, M.D., Jacob L. Williams, M.D., J. S. Latimer, D.D.S., Norman W. Kingsley, D.D.S.

" *Treasurer*, Samuel S. White.

" *Secretary* (Dental Profession), James Truman, D.D.S., 1221 Spruce Street, Philadelphia."

## THE ANNUAL CONVOCATIONS.

The American Dental Association, the American Dental Convention, and the Southern Dental Association, have all been in session, but no reports have yet been received of their transactions. We hope to have reports from each of them in time for the next issue of the Dental Cosmos.

# BIBLIOGRAPHICAL.

Thermic Fever, or Sunstroke. By H. C. Wood, Jr., M.D., Clinical Lecturer on Diseases of the Nervous System in the University of Pennsylvania, etc. Boylston Prize Essay. 12mo, 128 pp. Philadelphia: J. B. Lippincott & Co., 1872.

In this interesting volume Dr. Wood gives a *résumé* of facts, experiments, clinical observations, and reasonings on the ætiology, pathology, and treatment of *coup de soleil*, or sunstroke. The literature of the subject is carefully reviewed; the various theories which have been advanced by different observers, the treatment based thereon, and the results, are concisely set forth and discussed; and details of a series of experiments on animals, and the deductions therefrom, are intelligently recorded. The conclusion to which the author arrives is, "that the *nature of sunstroke is that of a fever*, or, in other words, that *coup de soleil is a fever not dependent on blood-poisoning, but upon heat,—an ephemeral or irritative fever*, if the term be preferred."

The chief indication as to the treatment of sunstroke Dr. Wood concludes in a word to be *the abstraction of heat.* The publication of this volume will add to its author's already deservedly high position as an original investigator, whether the correctness of his theories be confirmed or otherwise.

The Monthly Review of Dental Surgery. Received from Lindsay & Blakiston.

We have received, bearing the above title, the first number of a new dental periodical, published by E. J. Francis, London.

The dental profession in England has hitherto supported but one journal, viz., *The British Journal of Dental Science.* The publisher claims as his object the supply of a want which has been urgently felt during late years—"an organ to adequately represent British Dental Surgery."

The first number is a very creditable one in every way. The articles are both fresh and practical. Charles Tomes contributes a paper on "The Developmental Origin of the V-shaped Maxillary;" S. Hamilton Cartwright, one on "The Effects of Climate and Constitution on the Teeth;" Robert Hepburn, a lecture on "Dental Mechanics;" Prof. Wood, an abstract of a lecture on "Necrosis of the Upper Jaw;" Berkly Hill, on the "Effects of Syphilis on the Mouth and Teeth;" F. Mason, on the "Surgery of the Mouth;" and Charles Kelly, on "Dentition and its Disorders." These, with reports of meetings, hospital reports, and reviews, make an interesting and valuable number.

We welcome the new journal to our table, and wish it abundant success.

# PERISCOPE.

Foil and Filling.—As many persons handle their gold in preparing it, thus rendering it less serviceable and harder to work, I give my simple method, with the assurance that it works very nicely. I find it of much service to know what width to cut my strips of foil, as the numbers vary, since if too wide the pellets will be too bulky to be properly condensed. If too narrow, more time than necessary will be occupied in making the filling. Under ordinary circumstances we use Nos. 4, 6, 10, or 20, and cut the strips from a quarter of an inch to a half sheet, as the number varies from 20 to 4. It being fresh, adhesive, or properly annealed, we lay the strips of foil on a quire of bib. paper, or clean chamois-skin; then place lengthwise on the strips near the edge a medium-sized, bright knitting-needle, press it down; then place under the edge of the strips a very small knitting-needle; rotate it above the other needle; then the large above the small, and so on until the whole is rolled on the two needles, when the needles one at a time may be withdrawn, leaving an accurate cylindrical wall, with no rucks; cut this into sections from one-eighth to three-fourths of an inch in length, and we have the gold in such form as will enable us to condense as uniformly as though we were working the heavier numbers without folds. A size of needles should be used which will make a roll but little greater in diameter than the cavity to be filled, so that it may be neatly folded down in the cavity. If each fold is struck over its whole surface with a small point, either serrated or smooth, either with hand- or mallet-force, when the cavity is full and the filling polished, no anxiety will be felt for Nos. 240 or 480.—*Dr. E. L. Hunter, in Am. Jour. of Dental Science.*

The Dentes Sapientiæ.—Many persons have very erroneous ideas with reference to these teeth. It is not uncommon for dentists to say to their patients, "the wisdom teeth are of no account; it will not pay you to have them filled." Physicians almost universally pronounce them worthless. This impression is very general, both with the medical and dental professions, and in this way the public has been educated to believe that they are of no value. I wish to offer a few thoughts on this subject.

That these teeth are naturally of poorer material than others, I do not believe. But every observer must admit that they are liable to decay soon after they are erupted. It must be admitted also, that *all* the teeth are more in danger of decay at the time and soon after their eruption, than they are in subsequent years.

A wisdom tooth that has just emerged from the gums is in an immature state. The lime salts are not thoroughly hardened. We will find on an examination, that where the enamel folds together on the grinding surface of these teeth, there is frequently a fissure sufficiently open to receive the point of a small excavator. On cutting away these folds of enamel, it will be found that the dentine is quite soft,—not decayed,—and in this immature state they *are* more liable to caries. But let it be remembered that the first and second molars at the time of their eruption are, also, more in danger of caries than they are at the time of the eruption of the third molars. In other words, the first and second molars are fully developed and matured at the time the third molars are erupted; the former have passed the most critical period, the latter have not.

The wisdom teeth decay more frequently on their buccal surfaces than the other molars. This is, doubtless, owing to their unfortunate location. In many mouths it is quite difficult to remove particles of food from that side of the teeth. We frequently find collections of decomposed food in this location, even in the mouths of persons who use the brush regularly. This condition, of course, soon brings about disintegration of the enamel, and the destruction of the tooth soon follows.

If a young person has lost the first or second molar before the third molar is due, we should await the appearance of the latter, with considerable interest, and on its arrival use the utmost care to preserve it until it is fully matured, and after that it will be no more liable to decay than any other molars. The space that has been formed by the extraction of the first or second molar, will be almost, if not entirely, closed by the wisdom tooth inclining forward, and resting finally almost in the place formerly occupied by the second molar.

In some instances the maxilla is not sufficiently developed to receive the entire set of permanent teeth. In such cases the third molars are a source of great annoyance, sometimes irritating the surrounding parts to such an extent as to cause extended inflammation, and sometimes a free discharge of pus follows. In *such* cases I should recommend the extraction of the offending member.

The points, then, I wish to make are these: not to extract wisdom teeth *because* they are such, nor to neglect filling them on the mistaken idea that they are naturally worthless, but to extract them *only* when their absence is more desirable than their presence.—*Dr. J. P. Wilson, in Mo. Dental Journal.*

GUILLOIS'S CEMENT.—Is Guillois's Cement, or the oxychloride of zinc, affected by the secretions of the mouth?

W. G. L., a young man aged twenty-one, called about a year since (now April, 1872), whose teeth were in a very bad condition.

Attention will first be called to the character of the decay in the superior incisors and cuspidati, as they first received my care, and also because they afforded a good but severe test of the permanence of Guillois's cement, with which they were at that time filled, and immediately secured from the encroachment of moisture by a covering of wax. This was flowed over the fillings with a hot instrument,—the wax remaining undisturbed for a period of twenty-four hours, and when removed they (the fillings) were nearly or quite as hard as the sample which accompanies the preparation.

These teeth, before filling, presented the following conditions: In the left cuspidatus was a cavity involving both proximal surfaces,—the right and left palato- and labio-proximal angles, and the labial surface, two-thirds of its extent and even with the borders of the gum.

This description will also apply to the left lateral incisor, which, with the cuspidatus, has lost its filling. The left central incisor was decayed in both proximal surfaces, and on the palato- and labio-proximal angles, two-thirds, and the labial surface one-quarter of its length from the borders of the gum downward.

The fillings are yet remaining in this, and the right incisors and cuspidatus, but defective at the borders of the cavities.

The six front teeth present about the same individual size and form of cavity, which may be described as semi-lunar in shape.

The crowns of the cuspidati are each about five and one-half lines in length, and in greatest width four lines, the incisors being proportionately large. The molars and bicuspids are large and bulging, and the enamel thin, with cavities in almost every conceivable location, not excepting the lingual surface, of the first and second inferior molars next to the gums.

These fillings of Guillois's cement, though perfectly adapted to the thoroughly excavated and dried-out cavities, first showed signs of failure at the point of union with the borders of the latter by an appearance of wasting or corrosion from chemical action.

Some of them have from this cause dropped out, while in the others the process is still going on, so that the action of the fluids of the mouth has seemingly proved too powerful for the fillings to withstand; otherwise how are we to account for their destruction? Not from friction in mastication, for they were very little exposed to it.

In this mouth the saliva was very viscid, and on being tested with litmus-paper, showed an alkaline reaction.

The question is, Will alkaline saliva act upon and destroy the integrity of Guillois's cement, and kindred preparations?

In order that fillings of this material may prove of any considerable permanence, must the secretions of the mouth be either acid or neutral?

The Guillois's cement and the American preparation of oxychloride of zinc are supposed to be essentially the same.

The chloride of zinc is acid, and is made by the action of hydrochloric acid on metallic zinc, while the oxide is nearly or quite neutral.

If either Guillois's cement or oxychloride of zinc is touched with litmus-paper before it has time to harden or set, the paper will be reddened, showing a decided acid reaction. The same will be the result if the preparations are allowed to thoroughly harden, then moistened with water, and tested in the same manner. Both were subjected to this test seven, fourteen, and twenty-one days after being made into a paste, when in each case the reaction was strongly acid.

The fillings of Guillois's cement in the mouth, before referred to, on being washed from the saliva or mucus, all particles of foreign matter removed, moistened with water and tested with litmus-paper, showed the faintest acid traces, which was almost imperceptible.

The saliva lodged in the labial surface cavities of the adjoining lateral incisor and canine was alkaline. The cavities were free from foreign substances, and care was taken to keep the litmus-paper from contact with the mucous membrane.

Do not these facts indicate that these fillings will not stand in cavities where they would be subjected to the action of alkaline saliva, fluids, or secretions of the mouth?

What chemical action takes place when the acid (chloride of zinc) is united with the oxide of zinc (neutral)? A union of the particles by expansion; and to this, also, is due the hardening and setting of the material.

Is not the permanence of the filling dependent upon the retention therein of the acid? If so, anything that neutralizes the latter will destroy the union of the constituent parts; or in other words, decompose the filling. Not being a chemist, these questions are submitted for the purpose of eliciting information from those versed in the science.

It is well known that the oxychloride of zinc will, in some mouths, remain unimpaired and unchanged for years, if placed in proximal cavities where it is not subjected to much friction, especially in the anterior teeth. This has been observed repeatedly in the case of the American preparation, manufactured by Dr. J. H. Smith; and, doubtless, if the same care is exercised in its manipulation as with Guillois's cement, it will prove equally as permanent, and, in my opinion, more so. Such has been my experience.

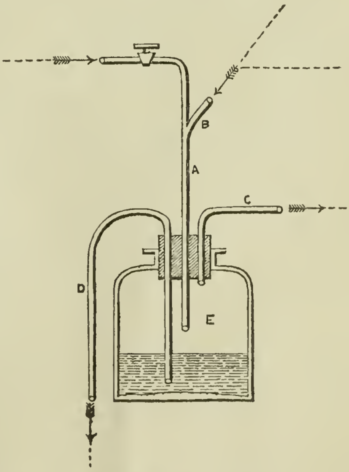
As it has been asserted without qualification in reference to Guillois's cement that "it will resist the secretions of the mouth," and as an argument why, considering its affinity for dentine, and its natural appearance, it should be used in preference to gold, the above details have been presented as a counter-argument, or as showing that some regard should be had to existing conditions in the use of this material.—*H. L. Sage, in Dental Register.*

CARIES OF MAXILLARY BONE, RESULT OF ALVEOLAR ABSCESS.—On the 3d of February, 1870, Mr. S. B. presented himself at the clinic of the Pennsylvania College of Dental Surgery, with a discharge of pus from the upper jaw. Upon examination, I found a very small opening in the position of the left superior canine tooth, from which pus was forced by pressing upon the gum over the alveolus. This discharge had been first noticed about fifteen months previously, it then being nothing more than an abscess upon the canine tooth; but as it did not cease, he had the tooth extracted about four months before he visited our clinic. Its extraction was followed by a copious discharge of pus. Since then nothing has been done for the disease, except to syringe the cavity with a solution of Castile soap. Examining the cavity with a probe, I found that a large portion of both of the superior maxillary bones had been destroyed; so much, indeed, as to include much of that between the mouth and nasal cavities, and extending behind the incisor teeth (all of which were in position) to or a little beyond the right canine. Pressure upon the palate proved the absence of bone over a considerable portion of it, as the mucous membrane was soft and yielding, and the pressure forced the pus out of the opening at the alveolar ridge. I enlarged this opening considerably, and syringed the cavity thoroughly, first with warm water and then with a strong solution of *phênol sodique*, washing out a large quantity of very offensive pus. As the patient resided in the country, I could not treat the case myself, so I directed him to syringe the cavity every morning and evening with the same solution. When I saw him again, one week afterward, he was much improved, there being no pain and no unpleasant odor. On March 4th, he was very much better, the discharge at this time being slight. I directed him to dilute the medicine more and more as the disease approached a cure. On April 1st, the disease seemed to have disappeared entirely, and the cavity to be lined with mucous membrane. Probably the disease had disappeared some time previously. I directed him to keep the cavity clean by washing it frequently with warm water, and to use also a very weak solution of the *phênol sodique* once a day, to keep it sweet and pure, as food was likely to collect in it through the opening in the alveolus. As the periosteum was destroyed, there was no hope of new bone forming; so I recommended him to have an artificial denture made (as there were several teeth missing), with a closed tube extending into the cavity, to keep it from closing entirely; as, if it were allowed to do so, the mucus, etc. that might be there would decompose, and renew the trouble. I saw him a few weeks ago, and, as he had not followed my advice, the sides of the opening had almost come together, leaving the latter very small, and increasing the difficulty of keeping the cavity clean.

I could find no evidence of syphilis, or of the scrofulous or tuberculous diathesis, and as the man's general health was good, I was forced to conclude that this extensive caries resulted entirely from the abscess upon the canine tooth. The case exhibits the necessity of curing these abscesses before they become chronic.—*Dr. Elihu R. Pettit, in Dental Times.*

BLOWPIPE WORKED BY WATER.—The following method of constructing a very simple but effective blowpipe worked by water may have some interest. It is used in German laboratories.

A quart bottle (E) has three tubes fitted to it: one (C), only just passing through the cork, is attached to any blowpipe by india-rubber tubing. Another (D) passes to the bottom of the bottle and is bent down outside to form a siphon for carrying off the waste water. The third (A) reaches a short distance into the bottle, and is connected to an upright pipe five-eighths in diameter and about six feet long, through which water is allowed to flow into the bottle from a tank or water-pipe. A short side-pipe (B), unclosed and open to the air, is inserted into the upper part of the long one (A), with its end pointing obliquely upward, through which air is drawn by the current of water, and being carried with it into the bottle separates from it there and passes to the blowpipe under considerable pressure, while the water runs away by the siphon.



A very high pressure may be obtained by using water at high pressure, or having a longer upright pipe without complex machinery or any expenditure of labor.—*S. A. Kirby, Esq., in Brit. Jour. Dent. Science.*

DEATH FROM CHLOROFORM.—Thanks to the somewhat frequent occurrence of the heading "Death from Chloroform," in the papers, the subject is beginning to excite a considerable amount of interest and apprehension among the public. In the profession, there has been, I think, rather a tendency to avoid the subject,—to look upon the occurrence of an occasional death from chloroform as a sort of necessary price paid for the advantages of anæsthesia. Whether this be the case, whether the fatal result really depend on an inexorable fate or on some more preventable cause, is, I think, worth inquiring into. Considering the extensive and general employment of chloroform for even the most trivial of surgical operations, a death directly due to its influence is, happily, of rare occurrence. During the twenty-five years that I have been attached to this hospital, I have only witnessed one such death. It is a sight which must always produce a deep and painful impression on those present; the more so, since the administration of chloroform is by no means a necessary part of the operation; the relief of pain is in many cases nothing more than a luxury.

All surgeons will agree with me that, in extra-hospital practice especially, the administration of chloroform is that part of the operation which often gives most anxiety to the operator. In a hospital, chloroform is generally administered by some one who is in the daily habit of performing that duty. The process is watched by competent observers, and there is every appliance at hand in case of need. In private practice it is often given by the practitioner in charge, whose only experience is derived from a limited use of the drug in midwifery cases, and both the patience and peace of mind of the surgeon are upset: for, indeed, a considerable amount of practice and experience are required to enable a man to give chloroform well; some acquire the necessary skill more easily than others; but no amount of care can make up for the want of a certain amount of practice.

We must confine our attention to deaths which are *directly and immediately* due to chloroform. These may occur in three ways,—by the lungs, by the head, or by the heart; from asphyxia, from coma, or from syncope.

I. *Asphyxia* may be caused (1) by tight clothing, or by anything which hinders the respiratory movements, as a large abdominal tumor; (2) by actual choking. If chloroform be given too soon after a meal, vomiting of semi-digested material is very likely to occur, and the larynx may be obstructed by it. A gag or false teeth may slip into the throat and cause choking; the tongue, also, like the other voluntary muscles of the body, becomes paralyzed when the patient is fully anæsthetized, and, by falling back into the throat, may itself cause choking. Deaths from these causes, the first more especially, have occurred most often in dentists' practice. Still, simple asphyxia is not often actually fatal, though narrow escapes are common; the signs are so well marked that they can scarcely be overlooked, and the patient can generally be recovered if assistance be at hand.

II. Death from *coma* due to chloroform is rare; still, the only case with which I have been personally connected was due to this cause. The patient was suffering from chronic Bright's disease, and had slight symptoms of uræmia. The administration of chloroform had not proceeded far when convulsions occurred, followed by coma and death in about an hour. In this case, at all events, the mode of death was evidently predisposed to by the poisoned state of the blood.

III. We come at last to that part of the subject to which I wish more particularly to direct your attention,—the death from *cardiac syncope*, as it is called. This is to me a very puzzling mode of death, as difficult to account for as it is to guard against. I presume that by the term "cardiac syncope" is meant atony and failure of the heart's action. This is an easy explanation, but not altogether a satisfactory one. Among the numerous experiments which have been made with chloroform, I do not know of any which prove that it has any direct syncopal action on the heart, or even any indirect toxic action on that organ through its nerves. Still, there is no doubt of the fact that people do die without much disturbance of respiration, without becoming distinctly livid in the face; the pulse fails; that is the first thing noticed, and they are dead.

Now, my own idea is, that these are really cases of asphyxia; that the heart is secondarily, not primarily, affected; and my explanation would be as follows: After death we find in these cases a weak, fatty heart; the valves, indeed, healthy, but the walls thin, and the muscular tissue pale and degenerated. Now, chloroform has always, especially at first, a slight asphyxial tendency; the patient calls out that he is choking, tries to pull away the inhaler, and breathes deeply, then struggles and holds his breath for a few seconds. In a healthy man this soon passes off, the inconvenience is merely temporary; but with a fatty, enfeebled heart it is different,—the patient holds his breath for a few seconds, the right side of the heart is soon filled, there is weak propulsive power, the organ cannot recover itself, and the result is fatal.

Some years ago, I made numerous experiments on death by asphyxia in animals; and I found that if once the ventricular action were stopped, if a contraction were missed, it was most difficult to start again,—generally all was over. And this is what happens in these cases; the ventricle cannot be emptied quickly enough, the rhythm is lost, and almost instantaneous death ensues. The patient, then, does not die from the direct action of the chloroform on the heart, but from the effect of a slight asphyxial condition, which is inseparable from the administration of this agent on a disorganized heart. After death, you may not find the right side of the heart greatly engorged: first, because great engorgement is not necessary to cause a fatal result; and secondly, the blood, even many hours after death from chloroform, is found usually fluid, so that the dependent parts of the body are congested and the heart is left comparatively empty. Then, also, artificial respiration is always set up in these cases, and this tends to diminish the cardiac plethora.

Finally, a few cautions. Never give chloroform without first thoroughly loosening the dress; if possible, not within four hours of a meal; the head should be moderately raised; the pulse, respiration, and color of the face must be carefully watched. As regards the occurrence of the rigid spasm already adverted to, I do not think that sufficient attention has been directed to this condition. A patient with an enfeebled heart is then in a most dangerous, even critical state: the chest-walls are fixed, the lungs are filled with chloroform-vapor, which becomes diffused, but cannot escape, the pulmonary circulation is obstructed, and the pressure on the right ventricle rapidly increased. Let the patient partially recover, then give it again slowly; watch for any blueness around the mouth, etc. If the pulse fail, draw forward the tongue with forceps, and set up artificial respiration at once; but prevention is the main point. When there is well-marked asphyxia, artificial respiration is most useful, and generally successful; but in these cases of so-called "cardiac syncope" it is generally useless; the heart has been barely able to meet the ordinary requirements of the system; it cannot recover lost ground; it gives in, as it were, at once.—*Abstract of Clinical Lecture, by J. Eric Erichsen, University College Hospital, British Med. Journal.*

A Case of Cancrum Oris.—O. G., aged eight. Admitted to the hospital September 14th. His previous history, kindly furnished me by Dr. L. W. Case, is in substance as follows:

The patient was first taken sick August 19th, in the same house where his mother and two sisters were suffering from typhoid fever. In the inception of the disease, the symptoms in this case nearly resembled those which had characterized the beginning of the fever in the mother and sisters, though they inclined more to those of remittent. During the first week, constipation existed; but subsequently diarrhœa was present most of the time, with four or five stools daily. These symptoms were treated with dilute nitric and hydrochloric acids, with an occasional opiate to control the action of the bowels. As much milk and beef-tea as the patient could take were ordered; but, as most of the family were sick, the lad seems to have been neglected, and it is probable that directions with regard to medicine and diet were not well followed.

September 1st. Pulse 128; sudamina on chest and abdomen; no appetite; no stools; puffiness under left eye; urine normal; no pain.

September 2d. Patient appeared better.

September 3d. The swelling had increased, and the pulse ranged at 140; patient weak. Quinine was prescribed, and the administration of beef-tea and milk insisted upon.

The swelling gradually increased. On the evening of the 6th, the doctor noticed that the breath was extremely offensive; but the poor light and the swollen condition of the cheek prevented him from determining the seat of the difficulty. The following morning he discovered a dirty-looking spot, apparently a slough, on the inside of the left cheek, opposite the upper molars. Carbolized water was used as a disinfectant. On the following day, eight days after the first puffiness was observed, a small black spot appeared on the cheek externally; and twelve hours later, the cheek was found to be perforated. By this time, several teeth had fallen out in consequence of the action of the disease upon the alveolar processes. Portions of the slough were removed, and the carbolic-acid dressing, with poultices, again applied. From this time sloughing continued; and five days later, at the urgent request of the parents, who feared that the disease was contagious, the lad was sent to hospital.

On admission, September 14th, the left cheek was entirely gone. The slough which remained adherent involved the ala of the nose, and the left half of both; it extended downward to near the lower border of the inferior maxilla, backward to the ear, and upward to the orbit. The left eye was closed, and the swelling had extended to the left temple.

In this condition, articulation was of course very imperfect, though the nurse soon understood the boy's almost constant cry for water. When fluid was given, a portion was swallowed, but a large part escaped through the side of the face. The excessive fetor, together with all this, made an object inconceivably pitiable and hideous.

In response to the patient's cry for water, milk was given to allay thirst and furnish nourishment; carbolized dressings were applied; no pain was complained of.

September 15th, A.M.—Swelling had increased upon the temple, and began to appear on the scalp; no pain. The carbolized dressings were continued, and wine, beef-tea, and milk administered.

P.M.—Swelling of temple and scalp increased; temple emphysematous; all of the left half of scalp swollen. Patient objected to milk. Wine and beef-tea were continued.

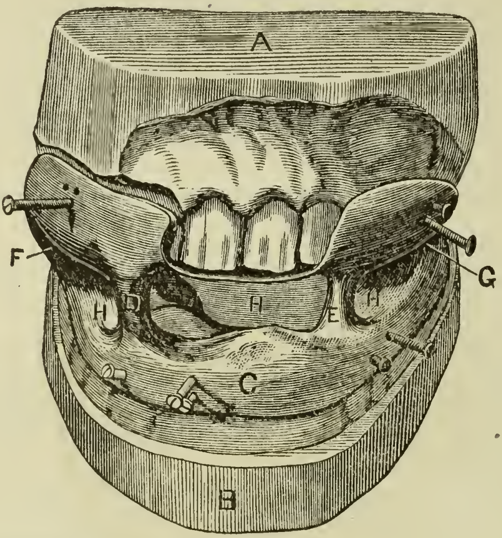
September 16th. The nurse reports that during the night the little patient seemed perfectly rational, and called often for his mother. At half-past six in the morning, the patient became unconscious, and continued in this state until seven o'clock, when he died.—*Dr. E. Fletcher Ingals, Medical Examiner.*

Case of Fracture of the Lower Jaw.—P. B., aged twenty-three, a laborer, entered the Philadelphia Hospital September 2d, 1871. Three days before, he had met with an accident, the exact nature of which was unknown. According to his own statement, "he had been knocked down by a locomotive." His face was much contused, and several bruises were noticed about his lower extremities. There was a perforating lacerated wound of the central portion of the fleshy part of the lower lip, and a ragged cleft through the upper border of the oral fissure. The lower jaw was fractured at the left horizontal ramus directly to the median side of the lower canine. The two central incisors and the left lateral incisor were lost. The median end of the left fragment of the jaw was drawn outward; the corresponding end of the right fragment was drawn inward. The left angle of the jaw was depressed.

The general condition of the patient was bad. His complexion was sallow, his tongue dry, his pulse rapid, and his intellect—which was at all times dull—became noticeably clouded. Insomnia was absolute. It was thought necessary to order a liberal supporting treatment at once. Nothing was done to the jaw, save to attempt to hold the fragments in position with silver wire until the soft parts had so far recovered as to permit a chin-cap and bandage to be applied. But, in consequence of the semi-maniacal condition of the patient (apart from the mechanical difficulties always attending such cases), the wiring of the teeth was of no permanent use. A general anasarcous condition now announced itself. The skin became jaundiced, and there was complete retention of urine.

The use of the inter-dental splint now suggested itself to my mind as a means of holding the fragments in position without pressing upon the soft parts. Accordingly, on the 6th instant, Dr. J. N. Wunderlich, an ingenious dentist of this city, was requested to take an impression of the mouth preparatory to the manufacture of a vulcanite splint. The teeth were again wired together, the dental arch thus restored, and an impression taken in wax, from which a splint was prepared which held, as in one piece, both the upper and the lower jaw (Fig. 1), and at the same time securely approximated the ends of the broken bone. The apparatus was permanently adjusted September 25th. It was for a time held in position by means of screws placed in orifices previously drilled in the enamel of the molar teeth, after the method proposed by the inventor of the splint, Dr. Gunning, of New York. But it was afterwards deemed advisable to pass boltlike screws through the entire thickness of the splint, at points corresponding to the small normally-present spaces between the cervical portions of the crowns of the molar teeth. This modification held the parts as in a vice, and entirely removed them from the control of the patient. His attempts to tear the splint from his mouth, or to dislodge it by facial contortions (which attempts were limited only by his strength), proved ineffectual. An abscess formed October 10th, at a point corresponding to the end of the larger (right) fragment. This was opened on the 12th instant, and a fragment of necrotic bone discovered within. It proved to be an exfoliation from the end of the right fragment at its basal portion. The opening, however, did not close, and in a few days another and larger exfoliation was removed, consisting of the remainder of the transverse section, inclusive of the septum between the two central incisors.

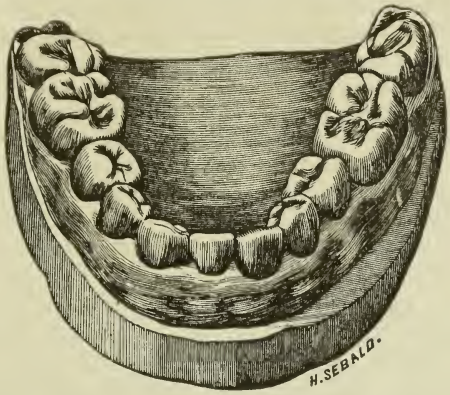
Fig. 1.



A, cast of the superior dental arch.
B, cast of the inferior dental arch.
C, the splint.
D, E, pillars of the splint.
F, G, the union of the two halves of the splint posteriorly.
H, H, H, the inter-dental spaces permitting the saliva to escape and the food to enter.

The general health of the patient now began to improve, and by October 15th the anasarca had entirely disappeared, and his reason returned: but not acquiescence in the plan which had been adopted for his relief. Notwithstanding that he was fed liberally upon animal broths, his complaints that he was starving were loud and unceasing. By the end of the twelfth week (viz., the latter part of December) the screws were loosened from the lower jaw, and the parts examined. To my disappointment, the fragments were ununited. The displacement, however, did not recur. The apparatus was immediately readjusted,—regardless of the remonstrances of the patient,—and retained until January 23d (about four weeks), when the parts, being again examined, were found firmly united. The stomach-tooth was loose. There being no prospect of its becoming fixed, it was extracted, when the cure was pronounced complete. Fig. 2 represents the inferior dental arch as it appeared at the close of the treatment, prior to the extraction of the left canine tooth.

FIG. 2.



Three teeth are seen between the first bicuspids. These are the two canines, and the right lateral incisor. The left canine was subsequently extracted. The fracture, therefore, had caused the loss of four teeth,—viz., the canine, lateral and central incisor of the left side, and the right central incisor.

The patient, after serving as ward attendant for some time, was discharged, at his own request, April 7th, 1872.

*Remarks.*—It is not likely that in this case any other form of splint than the one employed would have accomplished the result in a manner so satisfactory, if, indeed, it could have secured it at all. An external dressing could have been removed by the patient, unless his hands had been constantly tied. Apart from these difficulties, the inflammation attending exfoliation would have prevented the employment of a chin-cap and bandage. It will be remembered that Dr. Gunning employed the same method of treatment in the famous case of Hon. Mr. Seward.

The successful result in the case above recorded is in a great measure due to the unceasing attentions of Dr. Wunderlich.—*Dr. Harrison Allen, in Philadelphia Medical Times.*

CONSERVATIVE SURGERY OF THE FACE.—Thomas Dillon, aged thirty-five years, was conveyed to the hospital on September 3d, 1870. As a laborer he was employed raising heavy weights on board vessels by means of a windlass; while so occupied the handle slipped, and flying round struck him on the face with tremendous force. On admission into the hospital he was quite insensible, and the face presented a frightful appearance. He had evidently been struck from the angle of the mouth on the right to the edge of the orbit on the left side. Both upper maxillary bones were fractured; the nasal bones pulverized; the prominent portion of the orbit flattened; the palate comminuted, and all the upper teeth, with their alveolar processes, and portions of the upper maxillary bones, hung loosely in the wound. The inferior maxillary bone was also fractured. The large flap containing part of the nose and upper lip was turned down over the chin and neck, suspended by two narrow portions of skin and muscle. A good deal of venous oozing was checked by cold. The upper teeth were replaced, and the soft parts brought as nearly as possible together, and kept in their place by means of sutures, together with an ordinary mask and a bandage. The right eye was found much chemosed, and although the lid was divided, it escaped all further injury. When the patient recovered sensibility, it was found he could not swallow, but on the following day, when the palate was fixed by means of a gutta-percha plate, power of swallowing returned. The patient made a rapid recovery, and left the hospital with a very good face. The teeth and bone attached remained for a considerable time so loose that they could easily have been removed by the finger and thumb; they have now, however, become quite firm, and he has made an excellent recovery. Some months after his leaving the hospital I performed a successful operation for entropion, caused by contraction after the accident. Of the entropion there now remains not a trace to be seen.—*Dr. Meldon, in The Dublin Medical Journal.*

Partial Excision of Lower Jaw.—Mr. West brought forward a portion of the lower jaw removed for necrosis from a man aged forty-five. The condyle, coronoid process, ascending ramus, and the whole of the left side of the lower jaw from the second bicuspid tooth, were taken away by a single incision, commencing opposite the temporo-maxillary articulation, and ending opposite the angle of the mouth, very little blood being lost during the operation. No abscesses and no sinuses had accompanied the necrosis, and the disease appeared to have come on six months previously, after a diphtheritic attack. The teeth had no signs of caries about them.—*Reports British Med. Assoc., in British Med. Jour.*

Tongue-tie.—The term filet or frænum of the tongue is given to the mucous fold, which extends from the inferior surface of the tongue over the genian process. This fold is vertical, and more delicate above than below and behind; it is triangular, and its anterior border becomes prominent when the tip of the tongue is carried to the palate, and its inferior border is fastened on the floor of the mouth. When the frænum is of the normal dimensions, it serves to retain the tongue, but in such a manner as to allow it to be moved and to apply itself on the arch of the palate, and to escape from the mouth sufficiently to be able to project the tip of that organ in front of the lips, and to carry itself to the right and left in the cavity of the mouth, and to move itself on the inner surface of the cheeks inside and outside the dental arches with facility.

When all these movements are practicable, the frænum is in its normal condition; but when the child comes into the world with a frænum which does not allow of these different movements, there is a malformation, which is sometimes met with, but much more rarely than is generally supposed. Usually, we find the tongue carried with difficulty to the palate, so that the child cannot embrace the nipple with it, and sucking is difficult of accomplishment. We may assure ourselves of this difficulty by placing the little finger on the dorsal surface of the tongue; then, if the latter can advance, it embraces the finger, and will make efforts at suction, which show that the child can take the breast. Otherwise we may fear that the frænum is not properly formed, and then, by endeavoring to pass the finger under the tongue, we discover that it is retained by this contracted band. If we raise the tip of the tongue, we discover that it is fixed over the floor of the mouth, because the frænum is scarcely prominent, and it retains the tongue below, and is confounded with the floor of the mouth. In such a case, the mucous membrane is not formed in such a way as to make this sublingual fold, and prevents or impedes the movements of the tongue. Hence arises the necessity of making a division of the frænum, especially if in addition the nurse is in good health, and her nipple well developed.

The operation for division of the frænum, which is very simple, should then be performed. We notice, in raising the tongue, a fold formed by the arrangement of the two layers of mucous membrane of the floor of the mouth, which advance towards the inferior surface of the tongue to form a delicate transparent fold, but this is not carried sufficiently close to the tip of the tongue to allow of the different movements of that organ. Under these circumstances, we employ two fingers to hold the tongue up, and we make a division of the frænum engaged between the two fingers which, by pressing upwards, separate it from the vessels of the floor of the mouth, or else we engage the frænum in the fenestrated plate of the grooved director, so as to stretch the frænum while isolating the vessels. A single cut of blunt-pointed scissors, directed backwards and on this mucous band, will divide it. We must also protect the veins and arteries, visible likewise under the mucous membrane of this region.

There is another case in which the frænum is not at all visible, and it appears that the tongue is not detached from the floor of the mouth. In such a case, we must, while having the child's head held by an assistant, introduce the plate of the grooved director under the tip of the tongue, in such a manner as slightly to engage the mucous membrane corresponding to the inferior surface of the tongue. Then, in place of a single cut of the scissors, we must make a small incision and others in succession, gradually raising and slowly dissecting the inferior surface of the tongue, especially endeavoring to see the vessels, which may be exposed as we prolong backwards the cuts of the scissors.

This operation of the division of the frænum of the tongue, which should not be made in the normal state, should be most often performed at birth to facilitate suckling. We have operated on children at the age of two years who spoke imperfectly, without, however, stammering, and who have been benefited by the operation. I do not confound these two operations with those which I have practiced, unfortunately without success, in children who were really stammerers; in them I even cut the genio-glossi muscles without any result, several surgeons hoping, by this procedure, to cure the stammering. But we abandoned this kind of operation when we found, after practicing it for eight or ten minutes, that it did not give the result hoped for, and that, besides, we once or twice had serious hemorrhage, which we have reported in the journals.

As a general rule, the divison of the frænum is performed without any accidents, and with scarcely any hemorrhage. Nevertheless, we have sometimes met with recurrences, retraction of the tongue, and hemorrhage.

1. *Recurrence.*—To prevent this accident, we suggest, and we never fail to have recourse to it, the passing morning and evening, for two or three days after the operation, of the little finger beneath the tongue to prevent adhesions after the division. This is sufficient in ordinary cases, but if the frænum is thick, and cicatrization tends to approximate the lips of the wound, it will be well the next day, or the day after, to touch the angle of the wound with a pencil of nitrate of silver, as suggested by M. Hervez de Chegoin.

2. *Retraction of the Tongue.*—J. L. Petit cites cases of suffocation produced by the tongue being carried abruptly over the pharynx after division of the frænum; but we have not seen any such cases. Petit refers to several in which the tongue was brought into place with the finger, it having been pulled backwards, making a valve over the orifice of the larnyx. He retained it by means of a bandage after having restored the tongue to its position. When this was removed, the accident again occurred, and the child died as if it had been strangled. In a like case, it would be of the greatest importance to retain the tongue in place by a thread passed through the thickness of that organ, and this must be secured outside of the buccal cavity by means of a thread secured to the child's cap.

Petit cites the case of a child in which, without division of the frænum, the tongue tended to be carried backwards; it fell several times in an hour, attacked with suffocation. In such a case, which is perhaps but seldom met with, it will be advisable to secure the tongue rather with a thread than with a bandage, as advised by J. L. Petit. The use of the thread, prolonged for twenty-four or forty-eight hours, would give more security.

3. *Hemorrhage.*—This accident is rare, and yet it has been known for a very long time, and many methods have been devised for arresting it. Although generally of a serious character, and yet but little feared by surgeons, and, indeed, but little to be feared, it has nevertheless been the cause of death. There are examples of it in the older authors, and on this subject a treatise on division of the frænum, by M. Ferdinand Teissier, offered at Paris in June, 1866, may be consulted with advantage. A recent death from this operation in a hospital only confirms the fact that the accident may occur even to men of skill.

To prevent these hemorrhages, which are doubtless met with in children predisposed to them, it would be very desirable if we could distinguish at birth those children who are naturally disposed to hemorrhage. We have observed several such cases, but at a more advanced age. In the new-born, when we fear the occurrence of hemorrhage, we must postpone the division of the frænum. In any event, to prevent this accident, we must, in the division of the frænum, redouble our precaution and not look upon this operation as one of trifling importance. We cannot, therefore, repeat too often that we must hold the child securely, the head especially; with the left hand hold the grooved director, elevating the tongue, engaging the frænum completely in the opening designed for this purpose; it should, when pressed from below upwards under the inferior surface of the tongue, cause the frænum to project, and protect the vessels which are distributed under it. It is very important to cut the frænum, as we have already said, by directing the point of the scissors downwards. If the hemorrhage is slight, it ceases, as do the child's cries, when it is given the breast; but if it continues, we may pinch the point from which the blood comes by means of a small spring forceps, which may be kept for some time in place, or else, as practiced by M. Verneuil, use a strong serrefine retained by a thread passed through the ring. But we prefer placing under the tongue, and keeping it compressed with the finger for several minutes, a piece of agaric steeped in lemon-juice, or, better still, perchloride of iron diluted with water. If these remedies do not succeed, we must, without using styptics, powders, or nitrate of silver, so difficult to apply properly, and with which we lose so much time, raise the tongue as at the moment of operating with the plate of the grooved director, have the head held very immovable, endeavor to distinguish the point from which the blood flows, and boldly apply a stylet heated to a white heat, with the extreme and indispensable precaution of keeping the lower lip depressed with a soft linen compress or a spatula. —*Dr. Guersant on Surgical Diseases of Infants.*

Alleged Malpractice in Dentistry.—This was an action which became the subject of discussion between Messrs. James Lane, Arthur Norton, and Lawson Tait, in our columns last autumn. The plaintiff was mate in the mercantile marine service, and in 1869 had called on the Messrs. Gabriel, in Liverpool, to get a tooth taken out. According to his case, the assistant employed used a "key," with so much violence and want of skill as to break the jaw, thereby causing dreadful and long-continued pain and suffering, and loss of the use of the jaw. It appeared, however, that he had not for seventeen months complained; and, though he had within a week or two applied to a respectable surgeon, he was not called as a witness. On the other side, strong evidence was given for the defense, and the plaintiff's case was in the main denied. The Messrs. Gabriel and their assistant swore that they never used a "key" in their practice; and two medical witnesses were called, who said that they believed from the appearance of the jaw that it was partly weakened and broken away by disease. The jury, however, found for the plaintiff, —damages, one hundred pounds; but the learned judge who tried the case (Mr. Justice Lush) was not satisfied with the verdict. An application was made this week, and was granted, for a new trial.—*British Medical Journal.*

A Test for Pus.—Dr. Day, of Australia, has discovered a very delicate test for pus, which is so easily applied, and apparently so certain in its revelations, that we have little doubt it will soon come into daily use as an aid to diagnosis. He prepares his test-fluid by exposing a saturated alcoholic solution of guaiacum to the air until it has absorbed a sufficient quantity of oxygen to give it the property of turning green when placed in contact with iodide of potassium. On moistening the most minute quantity of pus with water, and pouring a drop or two of the test-fluid over it, a clear blue color is produced.

In connection with this test, Dr. Day has learned some very interesting facts concerning the nature of pus. He finds that healthy pus, when dried, loses its chemical activity, which, however, is restored by moistening it with water; also that pus from persons suffering from erysipelas and allied diseases is more active chemically than healthy pus; also that carbolic acid has the property of destroying the chemical activity of pus entirely and permanently, whether derived from healthy or unhealthy persons.—*Boston Journal of Chemistry.*

To Varnish Plaster of Paris Casts.—Of white soap and wax, take each half an ounce; of water two pints; boil them together for a short time in a clean vessel. This varnish is to be applied, when cold, by means of a soft brush. It does not sink in; it readily dries; and its effect may be heightened by lightly using a silk handkerchief.—*Boston Journal of Chemistry.*

Cement for attaching India-Rubber to Wood or Metals.—A cement that will form a firm union of rubber with either wood or metals consists of a solution of shellac or gum lac in ammonia. Finely pulverized lac is dissolved in about ten times its weight of concentrated ammonia. The solution takes place in the course of a few days without the application of heat, or sooner if slightly warmed.—*Journal of Applied Chemistry.*

## HINTS AND QUERIES.

What is the best method of fastening teeth with rubber on gold plate?—Metallic.

Will some one inform me whether it is necessary to be a licenser of the Goodyear Vulcanite Company to enable me to vulcanize rubber plates for regulating cases?—Regulator.

Will some one tell me how I can unite the mercury in a Whitney's thermometer after it becomes separated?—J. S.

Is it unprofessional for a dentist in a rural district to attend calls in the country, and operate for private families? and if so, why?—H. A. B.

What has the dental profession contributed to science besides anæsthesia that is of value to the general practitioner?—G. X. Q.

How can it be ascertained whether *fused nitrate of ammonia is absolutely pure* before using it? And what are the best chemicals to use in purifying nitrous oxide?—Anæsthesia.

Administration of Nitrous Oxide Gas.—I have three questions to ask relative to making and administering nitrous oxide gas:

Is it *safe* for a dentist to make and administer the gas within thirty minutes from the time the ammonia is put into the retort, pouring about one quart of cold water into a seven-gallon bag, before filling the bag, "*to cool the gas*"?

Is it *safe* for this same dentist to allow an office-boy twelve or thirteen years of age to take a large bottle of *chloroform* and pour into the gas-bag, before filling it, as much as he (the boy) thinks would "be *about right* for the patient"?

And finally, after preparing the gas in the manner described above, is it *safe* to allow the patient to take it from an inhaler with no *exhaling valve*, with the nose tightly compressed to exclude atmospheric air?

This is "what I know about" the manner in which gas is made and administered in one well-known office in this city.—R. M.

Reply to "J. H. S."—How to make hard fillings with "Guillois's cement:" Mix very thick, and continue stirring and mixing until it is nearly ready to set. It is very important to keep it dry until it has time to harden. A very thick solution of gutta-percha answers well in some cases for this purpose.—H. A. B.

Pasteboard Air-Chambers.—I have recently made experiments in the use of pasteboard air-chambers for vulcanite cases, and find it works well. I take a piece of pasteboard of the required thickness, cut it in shape with the scissors, then paste it on the model, and after the case is vulcanized the pasteboard can be removed very easily, leaving a clear and smooth vacuum. It is needless for me to add here the trouble and time it sometimes takes to prepare chambers suitable for some models. As the difficulty is well known to those who do rubber-work, I communicate this to the Dental Cosmos, hoping it may answer as well in the hands of others as it has for me.—M. P. Beecher.

Pivot Teeth.—Four months ago a lady came to me for the purpose of having a pivot tooth fitted to the root of her right superior cuspid, which was so badly decayed as to preclude the use of a wooden pivot; and, as the other front teeth were all sound, I determined to clean the cavity in the root thoroughly, and use os-artificiel and gold wire, roughening the wire on both ends, that the material might more firmly adhere to it. She returned in a week with the wire broken off by the force used in mastication, most of which she did with the front teeth, as nearly all the back ones were gone. I then soldered to the artificial crown a strip of heavy gold plate as wide as the orifice of the cavity; then tapering it with a file so as to permit it to enter the canal as far as possible, replaced in same manner, and up to the present time it has remained so firm that I am convinced that this simple process will be found satisfactory in all similar cases.—C.

Destroying Nerves.—About a year ago I stopped a short time at the house of Dr. Hurlburt, who was in charge of the medical department of the Honduras Railroad, in Central America. He was suffering at the time with severe pain in left superior wisdom tooth, and desired me to destroy the nerve. I found it impossible to apply arsenic, owing to shape of cavity, and from the fact that when his mouth was open the muscles so covered the tooth as to hide it entirely from view. We used anodyne remedies without effecting relief, and, as he would not suffer me to extract it, I found myself under the necessity of leaving him unrelieved of his toothache. I saw him some six months afterward, and he told me that his old Carib man had made him a decoction of the cocoanut-root, which had immediately and effectually put a stop to his trouble. This is but one case out of many which I have met where a direct application of arsenic was not applicable, and where such a liquid would be invaluable. I am sorry that I had no opportunity of learning more about the virtues of this root, and would suggest to those living in countries where the tree grows to give it a test.—A.

Splitting Teeth.—I have had occasion in the last few days to use the splitting forceps in two cases for the extraction of the first inferior molars, whose divergent roots prevented their passage between the adjoining teeth. The dentures in both cases were of excellent quality and close together, and the tooth to be split so little decayed as to require all the muscular power I could use to accomplish it, the handle of the instrument springing in such a manner as to cause great concussion and pain. I believe that the lateral force against the approximal teeth was sufficient to break or loosen them, had they not been so well supported. The operation is simply a barbarous one with the instrument that I have, and, as I have never seen any other kind in use, I would propose that some inventive genius devise a forceps for this purpose with longer and stouter handles, with a screw passing through one handle and impinging upon the other in such a manner as to enable the operator to regulate the approximation of the beaks as desired. —B.

Filling Teeth.—Filling the lower teeth when they are naturally defective from incomplete formation of the enamel, is a very interesting subject to the dentist.

Master M., a lad about ten years of age, was brought to me by his father for consultation with regard to his front teeth. The family dentist, an honest man, gave them up as too defective by nature to be preserved by any dental operations, and desired that some other dentist should be consulted. I found the teeth to be eminently of the atrophied kind. All of the teeth in the mouth are more or less marked by that condition. There were irregular strata of sound and defective enamel, but the greatest defect about a sixteenth of an inch from the cutting edges of all the front teeth. The superior front incisors had commenced decaying in the grooves made by the absence of enamel, both back and front surfaces, and the cutting edges. The defects were all plugged successfully. The treatment of the lower incisors, however, was different. I did not find that the decay had extended very deeply. First a very thin separating file was passed between each tooth, and the decay scraped out of the cavities. The patient was dismissed for one month, to allow time for the teeth to settle, as their lateral support had been taken away. On the return of the patient, a thicker file was passed between them, cavities scraped, and the patient again dismissed for about two months. The same file as used the previous time would then pass some of the spaces without cutting away any more of the tooth; some spaces had closed, so that more tooth-substance was cut away. These visits were repeated from time to time, and the same operation gone through with until we obtained equal spaces between all the lower incisors and canines. I did not file through to the gum, as the enamel near the gum was sound. The teeth stand apart as regular as the teeth of a comb. This result could not certainly have been attained had all the filing been done at the first sitting. I thought it was worth while to bring this feature of filing to the notice of the profession, as I have not seen any reference made to it. These teeth are in a perfect state of preservation, and it is now twelve years since the operation was commenced; none have ever been plugged. I think the filing of the lower front teeth is more successful than with any other teeth.—J. D. WHITE.

CELLULOID.—I wish to say through the DENTAL COSMOS "what I know about" the celluloid base. I commenced using celluloid about fifteen months ago. Case No. 1, temporary set for Mrs. B., April, 1871. Returned in February, 1872, perfectly satisfied; ordered a permanent set on the same base. She "wanted nothing better." Inserted permanent ones in February, telling her to let me hear from her if anything went wrong. Have not heard from her since. She lives only three miles from here, so I suppose all is right. Set in oil, using a rubber (Whitney) flask, heating in tin dipper. I now use tallow instead of sweet oil.

Case No. 2, May, 1871. Mr. R. B., temporary upper set, inserted about a week after extracting about a dozen roots. Still wearing it. I have not done anything to them since inserting. I noticed them about two months ago: no decomposition of plate, no change except wear, which appears about the same as rubber.

I could give about twenty cases, all to correspond with the above; but I have one which more nearly corresponds with Dr. Ames's, and it is the only one I have had. Case No. 3, May, 1871. Mrs. H.; three front teeth. Took part of plate, pressed it out thin between hot irons; made the plate very thin. In six weeks it was badly warped. Replaced with same material, and have heard no complaint since.

To sum up my experience: it will not change its shape in the mouth when pressed from proper-shaped plates; it is as free from offense, or more so, than rubber, in no case making the mouth sore.

More shapes are required of the prepared plates. I would suggest some slabs one and a half inches wide, thicker at one edge than the other, from which to cut off suitable plates for one or more front teeth. We cannot afford to take a one dollar plate for one tooth.—P. A. FERBRACHE, *El Paso*, *Ill.*

SHORT METHOD OF RETAINING A KNOWLEDGE OF OPERATIONS IN FILLING.—Divide each jaw into a right and left section, and represent the right section of the inferior maxilla by figure 1, right section of superior maxilla by figure 2, left section by figure 3, and the left section of inferior maxilla by figure 4.

As there are eight teeth in each section of the jaws, each tooth can be represented by a figure corresponding to its number from the median line of the face: *e.g.* the central incisors 1, first bicuspids 4, second molars 7, etc.

The surfaces filled may be represented by index-figures: the figure 1 for the medial surface, the figure 2 for the labial or buccal surfaces, the figure 3 for the distal surface, the figure 4 for the lingual or palatine surfaces, and the figure 5 representing the grinding surface of the tooth.

In regard to position, let the first figure on a given line represent the section of the jaws in which an operation has been performed, the second figure the number of the tooth from the median line of the face, and the surface filled can be indicated by an index-figure following the figure showing the number of the tooth; that is, the first figure preceding the index-figure numbers the tooth, and the second figure preceding the index-figure shows the section of the jaw: *e.g.* $36_28_5$

would indicate cavities filled in the buccal surface of first left superior molar, and grinding surface of dentes sapientiæ in same section.

A cavity filled embracing two or more surfaces can be indicated in the usual way; by a line drawn under the index-figures: thus, $26_{15}$ a cavity filled embracing the front, medial, or antero-approximal, and grinding surfaces of the first right superior molar; $26_{135}$ comprising three surfaces.

Separate cavities in the different surfaces or in the same surface may be represented by a continuation of indices: thus, $26_{123455}$, a filling in each of the lateral surfaces, and two in the grinding surface.—J. O. Keller, D.D.S., *Findlay, O.*

**Arterial Hemorrhage.**—Occasionally dentists find cases of violent hemorrhage from the extraction of teeth. I have seen half a dozen cases or more, in a practice of thirty or thirty-five years, that would have proved fatal if left to themselves. In these cases most of the astringents ordinarily used, whether in the form of liquids or powders, fail to arrest the bleeding promptly, and, where the severed artery is deep-seated and unusually large, utterly fail, except at the sacrifice of much time and great loss of blood.

In such cases—and, *indeed, in all cases*—the following remedy, which is always at hand, will permanently arrest the flow in a single minute, and is better than all the advertised remedies combined. Shape out a vial-cork to the size and length of the extracted root; char it over a flame, and press into the socket, holding it there for half a minute or more. On removing the pressure the plug will remain. Not another drop of blood will flow, and nature in due time will remove the plug.

One case I remember in which all the upper teeth were removed at one sitting, late in the afternoon. The bleeding continued quite profuse until midnight, when I was sent for to see the patient. It being impossible to determine from which cavity the blood came, but suspecting the right cuspidati, I proceeded to plug it and several of the adjoining cavities, when the hemorrhage ceased at once; and no further trouble ensued, although the patient had become so much exhausted as to be scarcely able to articulate above a whisper.

I have seen several cases of transplanted teeth mentioned recently in the dental journals. In 1850, in Louisville, Ky., I attempted to cut off a right central incisor in order to pivot. On commencing pressure on the instrument, the lady suddenly caught my arm, and forcibly extracted tooth, root, and all. Nothing daunted (though at that period I had seen no mention of transplanting), I cut off the tooth, filed, bored, and adjusted the pivot-tooth to the fang, and on inserting it found it much too long. I removed it three times before getting it right. The fourth time, I inserted and wired it to the adjoining teeth. Eight years afterward I saw the same root still firm and serviceable. The pivot had been removed several times by the patient, and new ones inserted.

The above is for the information of the younger and less experienced of our brotherhood. I tried very hard the other day to teach my Newfoundland dog to sit up, but he only laughed, and said he was *too old.* I once showed a brother dentist how to mould an air-chamber with leaden plate. He looked on, and to this day cuts his air-chambers all by hand after the plate is vulcanized.

On another occasion I explained to a brother professional how to get up a set of dies for striking up gold and other plate of fusible alloy of bismuth, tin, and lead, by which a plate can be struck up and accurately fitted to the mouth in thirty minutes after taking the impression, using no heat other than that given from a five-cent spirit-lamp. To this day, or until the day of "Josiah," he sweats in midsummer over a blacksmith's furnace, melting his zinc and lead, and moulding his cast in sand,—consuming hours in doing the work of minutes. Well, let him sweat again. Who cares?—D. L. T., *Valparaiso, Ind.*

**Mallet, Dam, and Screw.**—Among the improvements in the dental profession within the memory of twenty years, not any that occur to my mind at this moment exceed in value, to the patient or practitioner, the use of the mallet, the rubber dam, and the small gold screws. The mallet is a very valuable instrument for those who desire to excel as operators, while in the hands of some an instrument of evil, from want of proper care and judgment. To Dr. Barnum I doubt not the consciousness of having conferred so great a benefit upon others is of greater value to him than any pecuniary compensation he may ever receive from it. I hardly think I could fill approximal cavities without it; indeed, I know I could not: I might *stuff* them. Even an approximation to moisture I consider as fatal to a perfect union of the gold as though the whole mass was fathoms below the surface. Many of the cavities between the teeth, on their buccal and labial surfaces, extend below the margin of the soft tissues which envelop them. In the deepest portions of the approximal cavities their cervical walls loop down, or up, as the case may be. Caries of the teeth, like those of bone, always present rounded edges,—never, to my knowledge, forming convenient square shoulders or angles, which are so desirable. Therefore, too frequently we find the cervical wall of a cavity below the margin of the gum. Under the water, under everything. Now, how can we raise it, so to speak, and get it high and dry? After having prepared the cavity as we desire, and our cervical wall is found to be below the margin of the gum, my plan is to fill the cavity as best I can with Hill's stopping, and then put on my dam. I find where some temporary filling is inserted into the cavity that I can adjust my dam much easier,—that is, carry it below the deepest margin of the cavity without the rubber catching, and otherwise troubling me. Then I apply my ligature, and in extreme cases, where there is much dipping above or below the margin of the gum, I manage to pack cement or Hill's stopping on the outer side of my dam and the walls of the tooth (cervical), so as to insure its stability and prevent its leaking. The dam is a nuisance if it is not tight; and, if properly and carefully applied, positively indispensable if *perfect* union of the gold is desired. With regard to the small gold screws, I must say that they are with me indispensable. The first thought that occurred to me upon seeing them was that they will save a great many exposed pulps. Possibly the reader may imagine that I am in the habit of exposing pulps. I have done such a thing, and am willing to be forgiven. A great many in the profession never committed so heinous a blunder, and of course are blameless. However, the man who does commit such a mistake as that to-day does not know much about the anatomy of a tooth, and probably cares less about it. The point I wish to make in favor of these pins is that, by their use, much of the tooth-structure can be saved. And another point I beg to submit is, that teeth can be saved by their use, with live pulps, that could not be filled with gold in any other manner. As to the first, I said that much of the tooth-substance can be saved, which is literally true, as it is not necessary to cut away good strong tissue to get a proper-shaped cavity for the retention of the gold. I would not leave weak and doubtful enamel, but I would save as much of the dentine and enamel as my judgment would permit me to, and then, if I had not such a shaped cavity as I felt sure would retain my gold, I would insert from one to three, or more, of Dr. Mack's gold screws. In regard to my second assertion, that teeth can be saved by their use, with live pulps, that could not be filled with gold in any other manner, is also strictly true. A Mrs. M., a lady residing in Paris, had one tooth of the latter class that was successfully treated. She had had some three other gold fillings in the tooth, and had lost them all, and came very near losing the tooth. The case was a right superior second bicuspid, with the palatal and both approximal walls gone, even with the margin of the gum on the palatal side, leaving only the buccal wall standing. Certainly it was impossible to get a retaining-point when so much of the tooth-substance was gone. And we also had a live and healthy pulp to contend with. Save it we must, and save it we did; and also successfully supplied gold in place of the lost dentine and enamel. There were placed in the strongest portion of the cervical wall two small gold screws, one-eighth of an inch long, and about one-sixtieth of an inch in diameter; also one in the most reliable portion of the buccal wall. The starting or retaining-point was around the screws, which, with careful manipulation, will be found to be very easy. In this particular case the whole mass of gold is dependent upon the three screws to hold it in position. And I am confident that they will do their duty, for I never examined a filling that, to the best of my judgment, was more secure and satisfactory. Any one having any doubts about the strength of so small a screw—about the tenacity of these fine threads upon so small a piece of wire—has only to insert one, by four or five turns, into some sound dentine in an extracted tooth, and they will find their doubts disappear, and be quite willing to pin their faith to a pin, when necessity requires it. We would not be understood, by any means, to convey the idea that the above three things are the only acquisitions that our profession has made during the past few years; for we have not forgotten the engine, the wedge, and heavy foils.—W. IRVING THAYER, D.D.S., *Brooklyn*, *N. Y.*

THE

# DENTAL COSMOS.

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## ORIGINAL COMMUNICATIONS.

### DENTAL PATHOLOGY AND THERAPEUTICS.

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(Continued from page 469.)

Much labor has been bestowed, by numerous observers, in the direction of embryonic dental formation and formed dental tissues, and for our present knowledge and theories we are indebted to the deservedly-distinguished authors of the past twenty-two centuries.

It is curiously interesting to trace, in Nasmyth's "Historical Introduction," the gradual advance from the questionable special physiology of Hippocrates (400 years B.C.) that "the teeth were glutinous increment from the bones of the jaws, dried by *heat* and capable of being made harder than bone, because they contained nothing *cold*," followed by the actual information by Aristotle, that only the front teeth change in man, and that the age of animals might be determined by their teeth; and the questionable pathology of Aretæus, that "the cause of toothache is only known to God;" followed again by the anatomical information from Galen (second century after Christ) of the difference in number of the roots pertaining to superior and inferior molars, and the appellation of "eye teeth" to the upper cuspids, because branches are sent to them of a nerve which distributes others to the eye; together with the correct pathology of Aetius, that it is through their connection with the nerves from the trifacial that the teeth can become painful.

Eustachius (1563) "describes the dental follicles, vessels, and nerves; refutes the opinion of those who think that the roots of the milk teeth are employed towards the formation of the permanent ones, and says that if the germs of the latter are not seen in the fœtus, *it is not that they do not exist*, but that they are still too small to be recognized." Albinus confirms the statement of Eustachius.

Ambrose Paré (1579), great as he was in general surgery, seems to have been dentally correct only in relation to such facts as had already been mentioned by others, and even these he uses as foundations for such erroneous deductions as to render it impossible that any one should be benefited by his labors in our specialty. He believed in the existence of the dental ligament, and also cited the protrusion of teeth, from want of occlusion, as proof that they grew during life, in order to supply waste by attrition from mastication. He, however, appears to be the first to mention the replanting and transplanting of teeth.

Duverney (1639) promulgated theories which, though spoken of by Nasmyth as "vague speculations" rather than "solid research," are remarkably in consonance with the result of the combined deductions of the most modern writers.

Leuwenhoek (1678) states that he has observed the tooth structure to be made up of very small, straight, and transparent pipes, six or seven hundred of which together would not exceed the thickness of one hair of a man's beard. From that time until quite recently, this has been considered to be a peculiarity of dentine, and reference is even yet quite frequently made to the dental "*tubuli*," though the probable existence of these in the living tooth has been disproven by Mr. Lionel S. Beale.

Malpighi (1687) speaks of the *two* different tooth tissues, and refers to the inner as formed of fibrous, and, as it were, *tendinous* hair, woven into a kind of net-work.

Hérissant, like Duverney, ventures considerable in the direction of assertion and theory which is interesting, and possibly quite as instructive as much of the same kind of writing at the present day.

John Hunter (1771) has the credit which pertains to the publication of a work not only generally excellent in text, but eminently superior in illustration; indeed, nothing surpassing it has appeared since his day, and few, except the best microscopical illustrations of the latest works, are equal to the illustrations of his edition of 1771. Indeed, in some instances the artist has exceeded the author in truthfulness, for in his drawings—the best delineations of teeth that have ever appeared in any work—he has given to the first bicuspid greater size than the second, and also the generally bifurcated root, while the text is erroneously antagonistic to this in both instances.

Hunter mentions the anterior temporary molar as generally preceding the temporary cuspid in eruption. He also discourses at some length upon the transplanting of teeth, an operation which, however, must not be confounded with the *re*planting both of ancient times (Paré) and of the present day. His work, as a whole, is worthy his well-earned reputation.

Hunter advocated the external commencement of dental caries, and it is to him that we are indebted for the interesting experiment of coloring dentine during its formation by feeding animals with madder.

Bichat has very properly received from Mr. Nasmyth the credit of being the leader in what may be called "modern improvement" in connection with dental research; but this is particularly the case as he is edited by M. Blandin, by whom he is added to, corrected, and in some important particulars antagonized. Notwithstanding the statement of Hunter, Bichat gives the temporary cuspid as erupting before the anterior temporary molar.

Blandin contends for the dermoid character of tooth structure. He teaches that the tooth is secreted by the external surface of the papilla on which it rests, which theories, though open to objection, serve to show the gradual approach to present ideas.

Blake (1801) published an excellent dental treatise, which, in many respects, is fully in unison with the results of our present experience. He entertained peculiar views in relation to the formation of enamel (cortex striatus), but his strength was in his practicality. He advocated judicious lancing of gums during difficult dentition, the extraction of the second molar in difficult eruption of the third molar or "dens sapientiæ," together with other modes of practice which are even now urged by the best periodical writers.

Fox (1803) issued a work which in many respects rivals that of Hunter. The illustrations, though not so good as Hunter's, are nevertheless *far in advance* of any dental work of the present; and while he evidently does not recognize the difference between twin teeth and fused teeth, yet he shows knowledge of both conditions by excellent engravings. He, like Hunter, mentions the fact that the anterior molars of the temporary teeth precede the cuspids in eruption, and that the cuspids are followed by the posterior molars some ten or twelve months later. His remarks upon operative interference, by extraction, to prevent irregularity, commence admirably and end wretchedly. His apparatus for the correction of dental irregularity is the bar and ligatures, which are still in use; and the "Fox bandage" (though suggested by him as a preventive to luxation of the jaw during extraction) is still frequently referred to and used for other purposes, both dentally and surgically. His ideas upon dental caries are thus expressed: "At first it has its origin *in* the bony part of the crown of the tooth, the structure of which is gradually destroyed, and the disease proceeds until the whole of the crown of the tooth, both enamel and bone, is entirely removed." And again: "The proximate cause of caries appears to be an inflammation in the bone of the crown of the tooth, which, on account of its peculiar structure, terminates in mortification." He details, in a note, an account of the continuous pain of progressing alveolar abscess, due (as he says) to inflammation of the *lining mem-*

*brane* of the cavity of the tooth, resulting in suppuration; and, having relieved it by an attempt at extraction, resulting in breaking off the crown of the tooth, he remarks that "in a similar case, instead of extracting the tooth, he would recommend *drilling a hole at the neck of the tooth into the cavity, that the matter might escape.*" He states that this lining membrane, in sound teeth, is firmly attached to the bone of the tooth, but when it becomes inflamed it separates from the bone, and the death of the tooth and *subsequent* caries is the consequence. He confirms this position by referring to death and caries of other bones consequent upon loss of portions of their periosteum.

Baron Cuvier (1812), one of the most brilliantly-talented contributors to scientific literature, gives us, in the direction of the teeth, much positive information, as well as interesting theoretical views. He is found in direct opposition to all who have preceded him in regard to formation of dental structure, though he does not by any means make clear that which has *assured* him that the "cortical" and enamel are produced by the same face of the same fold or membrane, and indeed leaves in such obscurity what the "cortical" is, that his pupil, Rousseau, maintains that it is nothing but "tartar"; while Baron Cuvier's brother, F. Cuvier, says of tooth structures that "only three substances enter into the composition of all the different classes of teeth, one class consisting of ivory, enamel, and *cortical*," etc.; while Baron Cuvier says that "neither enamel nor *cortical* are ever found on the roots of teeth," thus precluding the supposition that cortical and cementum are identical, while *we* recognize these three distinct, hard structures as pertaining to the human teeth.

M. Serres (1817) presents us with a work which it is pleasant to read, not only for its intrinsic merit, but from the tone of earnest inquiry and enthusiastic effort which thoroughly pervades it, though the pretension with which, in his preface, he "assigns a new order of eruption to the temporary teeth," and italicizes in the body of the work the information that "the canines never erupt until after the first temporary molars," which had been stated by Hunter nearly fifty years before, and reiterated by Fox only fifteen years before, is rather amusing, and particularly so, as he refers to both these authors; but he undoubtedly had excellent opportunities for observation, which he eagerly embraced. Unfortunately, like most enthusiasts, he discovered more than really existed, and consequently some of his assertions have failed to receive corroboration from recent research. His chapters on "third dentition" and "the regulation of irregular teeth by time," together with much of the remaining contents, are well worthy perusal.

Rousseau (1827) publishes a large volume, which, both in matter and illustration, is generally deserving of commendation. He admits the probability of the now accepted theory that the embryo contains the necessary rudiments for complete dental development, even from the earliest period of its existence. He confirms the existence of the "osteides" (pulp nodules). He advocates the theory of absorption of deciduous roots, from pressure exerted by the coming permanent teeth. He, strangely enough, retrogrades, by disagreeing with Hunter, Fox, and Serres, in regard to the order of eruption of the temporary teeth, and places the cuspids as appearing before the anterior molars. He states that the enamel is very liable to crack from rapid alternations of heat and cold, and attaches considerable importance to the prevention of this; a statement and deduction which I have since proven fallacious. The illustrations of this work are very fine as engravings, but the drawings of the teeth are anatomically incorrect. He regards dental caries as an ulceration.

Bell (1829). This work also contains that which has maintained for it an enviable position in dental literature even to the present day, being evidently the production of an earnest and intelligent observer. His illustrations possess the merit of being good, and mainly correct anatomically. The physiological drawings of dental development, however, are very incorrect, and his pathological drawings not good. The drawings of the forceps, excavators and pluggers of his time, are as good as any that we now have of those in use at present.

The views of this author are strongly in favor of the vascularity of the teeth, and also of the existence of absorbent vessels in their structure. He attaches much importance to these views, and bases all the theory and practice of his work upon them. His views in relation to tooth formation are not of sufficient importance to notice; but he, following Hunter, is correct in regard to the period of their eruption. The remarks upon diseases of first dentition are confined strictly to the dental indications arising therefrom. He urges examination of the gums, and, if turgescence exists, directs free and effectual lancing. He combats the theory of absorption of deciduous roots from pressure, and, regarding it as probably analogous to the absorbent preparation of the receptacles for the rudiments of the permanent teeth, he maintains that it is an *anticipatory process*, generally, if not always, however, requiring the presence of the developing permanent tooth, though without pressure or even contact, to excite, or at least to be consentaneous with, the excitation of the absorbents.

His remarks upon the prevention of irregularity of the permanent teeth are most excellent, well worthy careful and thoughtful perusal; he expresses himself, very properly, in no mild terms, in disapproval of the teachings of Mr. Fox in this connection, and contends ably against the officious and unwarrantable extraction of the deciduous teeth for the purpose of correcting that possible or present irregularity which is only a natural transition and productive of but temporary deformity. I feel desirous of awarding especial praise to Mr. Bell for his clear appreciation of conditions treated of in this portion of his work, for I feel that nothing more could be advantageously added, in any particular, to aid us in that supervision of the progress of second dentition which shall eventuate in handsome, properly placed dentures.

(To be continued.)

# DENTAL ANOMALIES.

BY GEO. T. BARKER, D.D.S.,

PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS, IN PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The following cases, with their methods of treatment, are detailed because they have presented certain distinctive peculiarities, either in their diseased manifestation or treatment, which seemed to indicate them as of special interest.

## TRISMUS.

Mr. W., apparently a strong, healthy man of forty; occupation a hospital nurse. The jaws had been closed tightly for ten days, fluids having been introduced into the mouth with difficulty, by passing between the teeth, which were large and strong, all being present. Externally there was presented a hard tumor, extending from the angle of the jaw on the left side to the median line and the symphysis, forming a mass which interfered with respiration to some extent, as well as with deglutition. He was emaciated and feverish, but had suffered no pain either in his face or teeth before the swelling and subsequent trismus occurred. Careful examination revealed no fluctuating "point," and rigid questioning only elicited the fact that the left lower wisdom-tooth had been badly decayed for several years, but to his knowledge had never had alveolar abscess.

*Diagnosis.*—That this was a simple case of alveolar abscess, the pus of which had burrowed between the mylohyoideus and glossal muscles, interfering with the action of the digastricus, as indeed with all the muscles of the tongue and chin, and by its pressure on nerve filaments, and presence, arrested nutritive action, by interference with circulation developing as a consequence trismus, with its attendant evils; the same cause, viz., pressure of pus on the larynx and its nerve filaments, accounting for the difficulty of respiration and deglutition.

*Treatment.*—Placed the patient fully under the influence of ether, opened the mouth *without difficulty*, extracted by means of Physic forceps the left lower wisdom-tooth. The extraction was followed by the evacuation of a large quantity of pus, which for horrible odor exceeded anything I had ever smelled in my professional life. The cure was immediate, or nearly so; effusions of lymph had taken place to some extent into the joints and surrounding muscular tissues, which had doubtless become partially or completely organized, but in a few days this was absorbed, and he could use his jaws as well as ever.

Reference to this case is especially made, as I had been but a few weeks previous called upon to give my judgment, with several other professional brethren, as to the accountability of a young dental practitioner, who was *said* to have caused the death of a young man by filling a tooth, causing subsequent abscess of the jaw and trismus. The facts as presented to us were nearly similar to those detailed in my case of trismus, except that a regular medical practitioner had, for I think ten days, attended and treated him for *bronchitis*, considering that that named disease was the cause of the trismus. As the dentist had not seen the patient after his tooth had been filled, and it appearing that it had not been improperly performed, it was considered that the mistake or *error* did not occur with him. A post-mortem examination revealed the fact that the patient had died most probably from apnœa, caused by pressure of the contained pus in the abscess on the larynx and its nerve filaments. If the tooth at any time during the time of continuance of the trismus had been extracted, his life would doubtless have been saved.

### Abscess from Tartar.

Mrs. C., a healthy, robust Cuban lady, of middle age, presented for treatment; on examining her mouth, found teeth all present, and *all* comparatively sound; the only evidences of decay were slight discolored lines, on grinding surface of lower molars. The right central incisor (superior) was very loose, and could have been easily lifted from its socket by the fingers. Careful examination revealed on the *posterior* surfaces of all the teeth, at the junction of the tooth with the gum, a thin line of very hard, black tartar, a kind that is seen occasionally in the mouths of smokers (and I have reason to think this lady had indulged in the Cuban habit of smoking cigarettes); and which is also very difficult to remove, requiring the sharpest scalers, and indomitable patience and perseverance. There was no evidence of this tartar on the anterior surfaces of any of the teeth except the right superior central incisor; here the root anteriorly was encrusted to its apex with tartar; there was no disturbance of pulp, that being healthy; the anterior alveolar plate was entirely absent, the tooth being simply covered by a loose, flabby pocket of gum tissue, in a state of chronic inflammation, constantly discharging ill-conditioned sanious pus, while vessels of this gum tissue were congested and enlarged.

*Diagnosis.*—Abscess arising from tartar, which by its irritating presence had caused absorption of the alveolar plate, and was the principal cause of the continuance of the effusion of a purulent secretion, as well as the attendant congestion and inflammation.

*Treatment.*—Removed the tartar from posterior surfaces completely with scalers, and from the root of right central anteriorly, as perfectly as possible, with a delicate excavator, then introduced by means of thin piece of wood some aromatic sulphuric acid. The action of this agent was two-fold: it destroyed any remaining portions of tartar by uniting with its chemical elements, and also acted as an astringent to the inner surface of the flabby pocket of gum tissue. After a short time, a saturated solution of bicarbonate of soda was injected to neutralize any free acid present. The pocket was then scarified internally with a very delicate lance, so as to simply cause slight hemorrhage; my object being to change if possible the character of the inflammatory action—getting rid *first* of the irritating cause; *second*, obtaining effusion of, and subsequent organization of, plastic lymph, or formative material, which under favorable circumstances would, I considered, restore the parts to their normal condition. After the bleeding from the scarification had ceased, the pocket was dressed, each day using one of the following agents: mild solution of *wood* creosote, wine of opium, or glycerole of thymol; also injecting occasionally a solution of hyposulphite of soda, ten grains to the fluid ounce of water, Dr. James Lewis's suggestion.

Externally, the flabby gum was treated as follows:

Superficial scarification was here resorted to, in order to stimulate the congested vessels, and to promote healthy nutritive action. After bleeding had ceased, the parts were thoroughly dried with bibulous paper, and were then painted over with collodion, my object being by this last procedure to induce contraction of the gum structure, by means of the contractile tendency of the collodion pellicle. This result was obtained, while internally pus ceased to be poured out; lymph was effused and organized, and contraction of the flabby structure occurred, from the external and internal treatment. The tooth became tightened in its socket, and in two weeks' time the case was cured. It is not presumed that in so short a time there was complete repair and restoration of lost parts, but I doubt not that under favorable circumstances the organized lymph will approximate in character to the lost alveolar plate; but should these circumstances not be present, breaking down of the effused lymph will occur, and the abscess again be reestablished. Unfortunately, the lady has now left the city, and the future results cannot be known. In my next communication I will refer to cases of absorption of the alveolar processes and loosening of all the teeth, and their treatment.

(To be continued.)

# PHYSIOLOGICAL OBSERVATIONS ON THE NATURAL FOOD OF MAN.

BY H. G. ULRICH, D.D.S., BALTIMORE, MD.

FROM the nature and offices of the different classes of the teeth, it appears that their structure and uses are more perfectly equalized in the human subject than in any other animal. It is true that in some tribes of animals, whose habits require the greatest possible extension of the office of a particular class of teeth, a corresponding development of that class is found to take place to a much greater degree than in man. Thus, in the carnivora, the cuspidati are greatly elongated and strengthened in order to enable them to seize their food and to tear it in pieces; in the rodentia or gnawing animals, as in the beaver for instance, the incisors are remarkably long, and exhibit that extraordinary development which their peculiar habits demand; and in the graminivorous animals, the ruminantia especially, the molars are found to occupy the most conspicuous situation. But, in each of these instances, the other kinds of teeth are found to be proportionally of less importance, and in some cases are actually wanting. In man, on the contrary, every class appears to be equally developed to a moderate, though a sufficient degree, and to exhibit a perfection of structure, which may be considered as the true type from which all other forms are mere deviations.

It becomes, therefore, a question of some interest, and perhaps of no less difficulty, to what food the structure which has just been demonstrated is particularly adapted. The opinion which I venture to give has not been hastily formed, nor without what appeared to me sufficient grounds. I advance it, however, with diffidence, and do not profess to consider it as much more than hypothetical. The endowment of reason, that greatest, best gift of the Creator, appears, if we consider the perfection of human organization, to be particularly, and in its highest degree even exclusively, adapted to the conformation and requirements of man. This high and Divine endowment should never be lost sight of in our reasonings on the human structure and the physiology and habits of our species; as it is only with the allowances and modifications which the possession of a quality so infinitely higher than the instinct of other animals necessarily supposes, that the actual habits of man can be viewed as compatible with his organization. Although these habits, now essentially arising from and combined with a state of civilization, which in a greater or less degree must be allowed to exist in every known tribe of our species, cannot be considered in any one instance as actually and exclusively natural, yet we may be led, by a careful examination of the structure of the different organs, and by an analogical comparison of them as they exist in man, with the same organs in those animals which most nearly resemble him in structure, but which are still found in a perfectly natural state, to a plausible supposition at least of what were originally his natural habits, and which would have still continued so, but for those changes which have arisen from the possession of this very endowment.

With this view of the subject, it is not I think going too far to say, that every fact connected with the human organization goes to prove that man was originally formed a frugivorous animal, and therefore probably tropical, or nearly so, with regard to his geographical situation.

This opinion is principally derived from the formation of his teeth and digestive organs, as well as from the character of his skin and the general structure of his limbs. It is not my intention now to go further into the discussion of this subject than to observe that if analogy be allowed to have any weight in the argument, it is wholly on that side of the question which I have just taken. Those animals whose teeth and digestive apparatus most nearly resemble our own—namely, the apes and monkeys—are undoubtedly frugivorous; but as from their organization they are necessarily tropical animals, and without the gift of reason, by which they might have overcome the difference of temperature by artificial means, they remain still restricted to their original food and confined to the very limited climate to which their structure peculiarly adapted them. The reasoning powers of man, on the contrary, have enabled him to set climate at defiance, and have rendered him in all cases more or less an artificial being. No longer restrained within the range of temperature to which the delicacy of his frame, no less than the nature of his original nutriment, would have confined him, he becomes the denizen of every climate and the lord of terrestrial creation.

# PROCEEDINGS OF DENTAL SOCIETIES.

## AMERICAN DENTAL ASSOCIATION.

### First Day.

The American Dental Association convened in Grant's Hall, Niagara Falls, August 6th, 1872.

The association was called to order by the President, Dr. Geo. H. Cushing, of Chicago. Exercises opened with prayer by the Rev. Mr. Doggett. Roll called, and members took their seats accordingly.

The minutes of the last meeting were read and approved.

The Report of the Committee on Publication was read and adopted.

Reports of Standing Committees were called for. The Committee on Physiology asked for postponement, which was granted them.

Dentists, physicians and other professional men in attendance, were invited to take seats in the body.

The report of the Committee on Dental Pathology and Surgery was called for, and introduced by Prof. Judd, with the remark that when preparing the report he suspected that one had already been provided for upon the subject of *Etiology*, and hence he had chosen that branch of the subject before the association.

The report was not intended to be a detailed history of the science of disease, but only a short résumé of some of the pathological doctrines of the present day. The study of symptomatology of the present day was compared with that of the earlier ages, and the investigations of Anton von Leuwenhoek and Marcellus Malpighi, two centuries ago, with the microscope were reviewed, as preparing the way for those of Bichat. The knowledge of etiology was considered of more real importance than any other branch of pathology, inasmuch as upon this, to a great extent, must be based all hygienic efforts, and the prevention of disease was of much greater importance to mankind than the partial restoration of lost powers and functional activities, after organs and tissues have suffered from pathological changes, and which are seldom perfectly restored to their original physiological conditions. The discovery of the *acarus scabiei* by Hyacinth Cestoni was referred to, to illustrate the progress of ideas upon etiology.

The etiological doctrines of Hippocrates and Paracelsus were also referred to; the discovery of the *trichina spiralis* by Zenke in 1860, as showing that there was at least one veritable constitutional or general affection due to parasitic influences.

Beale's work upon disease germs, their nature and origin, was reviewed. His investigations were not thought to materially conflict, but really to add great strength to, the doctrines now generally held by other laborers in this field of scientific inquiry.

The cause of caries was not fully explained. Mede was of the opinion that it is mainly due to the action of the secretion of the gums, though fungous growths of various species are admitted by him to be present in carious tooth substance. The experiments of others upon this point were reviewed, and the report closed with a discussion of experiments made upon that form of fatty degeneration in which the muscular fibre is converted into fat.

After the reading of the report, Dr. Atkinson said that he was afraid the subject now before them was not duly appreciated in that report, as it was a great undertaking to attempt to convey clear concepts to those who have not given their attention to the subject as it should be done. He thought they were only in the infancy of pathology. It was like discussing the whole body when only one-tenth of it had been submitted to investigation. The paper spoke of material processes. He thought there was no such thing as differential material processes, whether proto-plasm or bio-plasm, which is brought forward as the co-efficient of function. He thought it necessary to know the normal operations of functional activity, which is the physiology of the body, before the abnormal or pathological conditions could be understood. The paper spoke with certitude about disease being certainly propagable by a local parasite. Learnedly the experiments of each investigator were reported and recited, but this was not what they wanted. They must do better than that, and pronounce definitely upon the causes of disease, and not rest in the mere verbiage. Ideas, not names, were the things wanted. He concluded by saying that he was disappointed in the paper, as he had hoped it would go down to principles, whereas it had stopped in the mere fiddling about what others had done.

Dr. Judd arose to explain some terms which he had made use of in the report. In the first place, Dr. Atkinson stated that there was no such thing as material processes. He took it, however, that the assimilation of foreign materials by living matter was a material process, and when the tissues were broken down certainly this was a material process. When muscle degenerates into adipocere, by the abstraction of nitrogen, certainly the changes which go on are material changes. As to forces, he had said nothing about them at all. This point he had treated with great care, lest he should involve himself in logomachies. As to whether they had arrived at any definite conclusions by the investigations of the past, he thought he was prepared to say that they had, though Dr. Atkinson held the contrary. He claimed that it was shown, in the first place, that wherever scabies showed itself an insect was always found. This was strong presumptive evidence that it had some connection with the disease, though it was not till long after that Cestoni supposed this insect might be the cause itself of the disease, and he demonstrated that the *acarus scabiei* was *always* there when the disease was made manifest. In the second place, the acarus was observed to burrow and produce a vesicular eruption, but the facts in the case were not yet definitely settled. In the third place, it remained to determine whether the introduction of the juices of a patient, laboring under this disease, into another, could produce it. The experiment was tried, and totally failed. Now, so far as human demonstration can go, this was demonstration. This he thought was *science*. He could understand causes, but not processes. The gentleman had taken exceptions to his use of the word constitutional, in speaking of trichiniasis. It was there used in the sense of general.

Dr. Atkinson said that Prof. Judd had charged him with dealing with consciousness, while *he* was dealing in facts. He would like to know how they could get facts without consciousness.

Dr. McQuillen could not agree that all knowledge came from the inner consciousness of man, independent of schools and instructors.

The erroneous views of nature held by primitive men were notorious, and it was only after succeeding generations had revised and re-revised those opinions and beliefs that a tolerable approximation to truth was obtained. A child with an intellect ever so bright, on reaching maturity without pupilage, would be unfitted to grapple with the great problems of nature and of thought. He must submit to teachers and avail himself of all the helps thrown in his way. In the arts, in science, and letters, men must first be apprentices and then workmen before they can expect to be masters. The unwillingness to submit to the full period of apprenticeship was the reason why there were so few masters and so many pretenders in every department of science and art.

### *Evening Session.*

The Committee on Nominations was appointed by the President.

The subject of Dental Pathology and Surgery was again taken up, and Dr. Atkinson presented a paper on Phosphor Necrosis, which he illustrated by a chart, which he transcribed upon the blackboard for the consideration of the association. He referred to the bond of union by which certain substances cohered, and on being asked what that bond of union was, he illustrated it by chemical combinations which required definite volumes of the respective constituents before a bond of union could be established. A bond, he thought, was something that binds, which, in this case, was the chemical affinity that held them.

After other remarks explanatory of the position he was taking, he spoke of the action of sulphuric acid upon the tissues. He said that it had been empirically discovered that this agent would act on dead bone without injury to the living tissue beyond, when properly applied. The best strength for the acid is about one-eighth of the commercial acid. A very good form was the aromatic sulphuric acid. On being asked by a member what the result of the action of phosphorus on pabulum was, he replied that it was union—chemical affinity.

He then spoke of the various conditions necessary to render substances active in the body. In order to taste, there must be solution. The essential prerequisite to touch is resistance, to sight undulation, and so on. To secure physiological action, we must have an exact analogical relation established between the tissues and the pabulum upon which they feed. When that synthetical rhythmical relation is onward, upward, then there is physiology; when downward, pathology. When the retrograde metamorphosis is slow, then it is curable; when it is rapid, it is incurable.

### SECOND DAY.

The subject of Dental Pathology and Surgery was taken up and passed.

The Committee on Dental Chemistry was called, and Dr. Dickerman, the Chairman, read a very interesting report, setting forth the great importance of chemistry as a branch of the science of dentistry, and enjoining the more earnest attention of the minds of the profession to it. He illustrated the chemical processes which were ever at work around us, and demonstrated the operation of chemical laws in the body.

Dr. Buckingham, being called for, said, for a number of years chemistry was only supposed to apply to dead matter; physiology to living matter. He thought it was a question whether or not physiology was only higher chemistry. He spoke of the new theories which had been foisted upon the science,—the most prominent among which was the new nomenclature. He thought it very questionable whether it would ever be adopted universally. He thought it important that they should be a long time in changing.

Dr. Summers, Professor of Chemistry and Physiology, Southern University, Ala., was invited to address the association. He took issue with Dr. Buckingham upon the subject of the new nomenclature, and stated that there was not a university of any note in the country which had not adopted the new nomenclature, which, though it had its defects, was, nevertheless, far better than the old. After showing the difference between the two, he discussed the subject of acids and alkalies in the mouth, taking the ground against the popular belief: that alkalies were more injurious than acids. The latter, he held, indeed acted upon the teeth, but did not ordinarily destroy them so that the damage might not be repaired; whereas, the action of alkalies was totally destructive, it being altogether a retrograde metamorphosis, which was not the case in the action of acids, which united with the structure of the teeth. He also regarded caries as due, to a very large extent, to the sudden changes of temperature to which the mouth was subjected by the introduction of hot and cold drinks, the one just after the other.

He then took up the therapeutical application of the glycerole of thymol, stating that the great objection to its use was the intense pain which it induced. He recommended cumol to be used for capping pulps. The essential oil was the best preparation. He next discussed nitrous oxide as an anæsthetic agent, claiming that when perfectly pure it was altogether harmless in its effects. He explained the mode in which he prepared it, which was to pass it first through two half-gallon bottles of the saturated solution of the proto-sulphate of iron, then two half-gallon bottles of solution of caustic potash, and then washing through two bottles of distilled water. This will insure its purity. He thought the agent would be introduced into general surgery.

He concluded with some general remarks upon the chemistry of the fluids of the body, with more particular reference to those of the mouth and stomach.

Dr. Buckingham said that, so far as the introduction of the new nomenclature into the schools was concerned, there were colleges which he knew had not adopted it. Prof. Rand does not adopt. Bridges does not. It has not been introduced into the U. S. Dispensatory. He thought that they should not be so rapid in making changes which affect so seriously the mass of learners, who cannot be expected to change in a moment a nomenclature which they have always used, and which it would be very difficult for them to throw aside.

Dr. McQuillen said, in reference to the action of nitrous oxide and other anæsthetics, the view of Flourens, that it was due to impressions made directly upon the cerebro-spinal centers, appeared to him founded in reason. Exceptions had been taken to this by Snow, Richardson, and Sansom, who attributed the induction of anæsthesia to a changed condition of the blood, and the deprivation of the nervous system of a due supply of oxygen. This opinion had been expressed thus, "Narcotism is a suspended oxygenation."

He then briefly alluded to his own carefully conducted experiments on the action of anæsthetics on the blood corpuscles, as disproving the latter hypothesis. In those examinations no perceptible change could be found under the microscope in the blood corpuscles taken from man or animals, to whom chloroform, ether, or nitrous oxide had been administered. These facts were in accord with the opinion just expressed by Prof. Summers, that there was no alteration of the blood produced by the administration of nitrous oxide. It was a matter of regret that the assertion of Dr. Richardson, of England, that nitrous oxide was an exceedingly dangerous agent, the most to be feared of all anæsthetics, had made such a profound impression on the minds of the surgeons of Great Britain and America. Dr. Richardson said, several years ago, that all the animals he had experimented on with nitrous oxide died, and its employment as an anæsthetic with human beings would be attended by frequent fatal results. To test the correctness of these statements, the speaker had, in the presence of a number of gentlemen, kept various animals under the influence of nitrous oxide for a considerable time (in one instance a rabbit, for an hour and ten minutes), and yet all of them, without a single exception, were speedily restored to consciousness after the withdrawal of the agent. The most conclusive evidence that it was the least dangerous of anæsthetics was presented in the fact that millions of patients had been under its influence for dental operations (and not unfrequently in the hands of inexperienced and incompetent persons), yet only one or two fatal results had been reported as occurring from its use, and it was a matter of question whether these could be positively charged to it.

In addition to this, nitrous oxide had been used in a few instances where prolonged surgical operations were demanded, and the patients maintained in a condition of narcosis for more than an hour, without any unpleasant results following the administration. The introduction of liquid nitrous oxide was an important event, and the ease and safety with which it could be kept, for an indefinite period, in strong iron bottles, placed in neat portable cases, would be attended before long, it was reasonable to infer, by a general use of the agent on the part of surgeons, for capital operations.

He did not wish to be understood as assuming that the use of nitrous oxide was entirely devoid of danger. No remedy that acts so promptly and powerfully on the nervous system could be viewed in that light. And it should be used by cautious and experienced persons only, who, on the slightest evidence of impending danger, would know what to do, and have the coolness to take at once the proper steps for the resuscitation of the patient.

Dr. Bogue took issue with Dr. Summers in regard to the effect of alkalies in the mouth. He did not consider them more harmful than acids. He differed from him also in his statement that the people cannot be educated. He thought it too bad to throw anything in the way of this good work. As for himself, he had succeeded so well in educating his patients that he had not a filthy mouth in all his practice. He also took issue with him as regards the effect of chemical agents upon vital tissues, which he knew to be far less liable to destructive influences than those not in a state of vitality.

Dr. Summers replied that the great argument in favor of the existence of a vital force, which resists ordinary chemical action in the body, was drawn from the action of the gastric juice upon a dead stomach, whereas a living stomach is not affected by it. This has been demonstrated by actual experiment to be utterly worthless as an argument, since the epithelium which lies upon the mucous membrane of the living stomach is destroyed by the chemical action of the gastric juice, and when during the process of digestion it has been destroyed down to the layer of mucous membrane immediately superjacent to the walls of the blood-vessels, by exosmosis the alkalinity of the blood comes through to neutralize the acids which are the efficient agents in the action of the gastric juice.

Dr. Atkinson said that the gentleman who had just spoken had referred to the intense pain produced by the application of glycerole of thymol to an exposed pulp. This he thought due to the glycerin, not to the thymol which was *the* agent after all, as glycerin was only used as a menstruum. Being a form of sugar, it was very painful to the nerve, but he did not think that the application of thymol was painful. In regard to the action of nitrous oxide, he attributed its anæsthetic effect to the absence of oxygen—*i.e.* the blood did not get enough oxygen. He was opposed to anæsthetics *in toto*. He believed pain to be a condition of man. *Pure* nitrous oxide being so difficult to obtain, this itself should make them very careful. He referred to the deathlike pallor, which he said settled upon the face of the patient, and this he thought indicated a change in the blood.

Dr. Moore also gave his testimony to that, and agreed with Dr. Atkinson.

The subject of Dental Chemistry was passed, and the rules were suspended for miscellaneous business.

The following preamble and resolution, offered by Dr. Peirce, were adopted:

"*Whereas*, The Declaration of Independence of the United States of America was prepared, signed, and promulgated in the year seventeen hundred and seventy-six, in the city of Philadelphia, and the people of the United States having decided to celebrate, by appropriate ceremonies, the centennial anniversary of this memorable and decisive event; and Congress has, by appropriate legislation, appointed a Commission, whose duty it is to prepare and superintend the execution of a plan for holding this exhibition; and this Commission, in session in Philadelphia, has expressed the desire that statistics shall be collected relating to all matters that shall indicate the progress this country has made in the first century of its existence, and that all associations, religious, educational, industrial, etc., shall take such measures as will make the statistical department of the exhibition in 1876 as complete as possible; therefore,

"*Resolved*, That this association, now in session, shall appoint a committee of eleven, whose duty it shall be to prepare and present to this Commission such a report of the progress and position of our profession as, in their judgment, is consistent with the results of our efforts for the improvement of the physical, intellectual, and moral condition of man."

The following committee was appointed:

Philadelphia—C. N. Peirce, Louis Jack; New York—C. E. Francis; Boston—L. D. Shepard; Cincinnati—J. Taft; St. Louis—H. Judd; Chicago—G. H. Cushing; Nashville—W. H. Morgan; New Orleans—J. S. Knapp; Washington, D.C.—Dr. Noble; San Francisco—W. Dutch.

Resolutions were passed, fixing the place of meeting of the association at Philadelphia, for the year 1876, and a committee was appointed to correspond with the leading men in the profession in other countries, to secure a full representation.

The Committee on Dental Therapeutics was called, and Dr. Sage read an elaborate report, in which he reviewed all the various therapeutical agents of any consequence, which had come before the profession during the past year, and others which had been brought into more general use during that time.

The report was discussed as follows:

Dr. Truman said that the report had taken the ground that alkalies are more injurious to the teeth than acids. He differed entirely with the report upon this point. He did not believe that alkalies had any injurious effect on teeth. As a proof of this, he instanced the lower incisors, which seldom decay, owing to the alkaline condition of the saliva, in which they are constantly bathed. Decay was never found where an acid had not preceded. It proceeded from other causes than the secretions of the mouth. He held that it was produced by the growth of fungi, which increased and induced an acid condition in the carious cavity. Sensitive dentine was never produced by an alkaline condition of the mouth, but only by an acid condition. If the secretions were kept out of the cavity, there would be no sensitiveness, which is the result of acid saliva. In regard to capping the pulp with oxychloride of zinc, he said that he had been much pleased with an article in the Dental Cosmos, recommending the use of a mixture of the oxide of zinc with carbolic acid before the oxychloride was applied. It had proved very valuable to him, all pain ceasing on its application.

In reference to bleaching teeth, he said that the paper had not mentioned his experiments performed some seven or eight years ago. He had applied with great success a mixture of chlorinated lime with acetic acid. The report had quoted from a paper without originality, which had been mainly prepared from his experiments. He did not believe that chlorine would bleach in fifteen minutes, but stated that he had succeeded with acetic acid and chlorinated lime; but the usual time was from four to six weeks. He never had any success with oxalic acid or nitric acid; the latter turns the teeth yellow and is difficult to remove, and the discoloration will return even when removed. In regard to the use of acids for cleaning teeth, favored in the report, he thought it belonged to the dark ages of dentistry, and ought to be protested against.

Dr. Butler objected to the use of acids *in toto*, or anything that would affect the integrity of the tooth substance. The greatest number of discolored teeth are confined to dead ones, and not to the enamel as generally supposed. He thought it better to cut away a portion of the tooth than to act upon it with chemical agents. The objection may be brought against this method of procedure on the ground that it weakens the tooth, but the structure that is left is better than that operated upon by chemical agents.

Dr. Wetherbee said that he had many years since made several experiments in the use of chlorinated lime, and apparently with favorable results, but he knew no exception to the return of the discoloration. He had for twelve years used spirits of camphor, very strong, and it worked very nicely. He had not obtained favorable results from the use of oxychloride of zinc. He did not believe that, where the inflammation of the pulp had gone on to suppuration, it was possible to do any great service by attempting to save the pulp. He took exception to the use of undiluted acid for cleaning teeth. If the acid was strong enough to dissolve salivary calculi, it was strong enough to dissolve the surface of the teeth. He thought it was, therefore, culpable to use it, and only a dodge of gentlemen who didn't want to bend their backs to the work of excavation. He had instruments delicate enough to reach even to the end of the root.

Dr. Crouse said that he had often failed to remove tartar with aromatic sulphuric acid. As to the oxychloride of zinc, he did not understand why gentlemen should make failures with it, when, if properly applied, forty-nine out of fifty cases were successful. He did not have any alveolar abscesses following its use, and with the rubber dam he could apply it without pain.

Dr. Osmond related his experience with the tooth-powder of what were called in Cincinnati "the curb-stone dentists." They professed to apply a powder which was harmless—and indeed it was—and yet the teeth were rendered perfectly white at once, and "all for twenty-five cents." But all these whitened teeth soon became exquisitely sensitive, and they were at a loss to account for it until it was found out that, though the powder was inert, yet the mode of applying it was on little pledgets of Canton flannel, *which had been previously wet with strong sulphuric acid.*

Dr. Thomas called attention to the manner of preparing the cavity for the use of oxychloride of zinc. He first saturated it well with creasote; he then saturated a very thin piece of paper with carbolic acid, or creasote, and then put the oxychloride on that. He had yet to know the first failure resulting from that mode of preparation. A great many used collodion, which gave the same trouble as the glycerole of thymol—it was so painful.

### *Evening Session.*

The discussion on Dental Therapeutics continued as follows:

Dr. Carroll wished to know what had been the experience of the profession in the use of Guillois's cement. He had resorted to its use after abandoning the oxychloride of zinc, and it had more than met his expectations.

Dr. Bogue wished to know what Guillois's cement was.

Dr. Carroll said that in its appearance it was like the oxide of zinc, and the solvent was like that used in the application of the oxide. He did not know the composition of it.

Dr. Bogue said that he would like to know if the profession did not occupy a false position in prescribing substances, the composition of which was not known. He then read a formula from the *British Journal of Dental Science*, by Thomas Fletcher, Esq., F.C.S., of which the latter speaks as follows:

"Of the class known as osteoplastic, including oxychloride of zinc and compounds of silica, not one appears to be trustworthy in the majority of cases, the best being the one I published about twelve months ago. It is very similar in working to Guillois's cement, but will stand a more severe test, and is more permanent in the mouth. The composition is:

"*Powder*—Three parts oxide of zinc (Vielle Montagne), one part glass, ground to an impalpable powder.

"*Liquid*—Take fifty parts neutral solution of chloride of zinc of the strength of 100°. Twaddell's hydrometer, and add to it one part of borax.

"To make this cement trustworthy, in most cases, the oxide of zinc must be made red-hot before mixing with the ground glass, and it must be used within a few days after it has been heated. If the oxide of zinc has been heated to clear redness just before using, the cement will resist acids."

The Committee on Physiology was called, and Dr. Dean read a very interesting report, setting forth Dr. Allport's new theory, which will be developed in the discussion which follows:

Dr. McQuillen said his appointment as chairman of the Committee on Physiology was made without consulting him, and although present at White Sulphur Springs, he was not apprised of the fact until some time after the adjournment. He had been somewhat at a loss what subject to select for consideration,—a feeling which only those who, year after year, had performed their appointed tasks as chairmen of committees could properly appreciate. "Mind," viewed from the "Evolution" standpoint, and then the "Universality of Life," in turn, seemed to him for a time themes that would prove alike interesting and instructive, and he prepared notes on these two subjects which he had with him. The recognition, however, that both of these were open to the objection of being foreign to the objects of the society led to the selection of "Mastication" as a subject which had never been presented to the association, peculiarly appropriate, and eminently practical in its bearings upon the comfort and health of man. The field to be passed over was a wide one, and in the limited time allotted could only be presented in a general manner. This, however, would afford ample opportunity for others to discuss the subject.

He then presented a description of the comparative anatomy of the organs of mastication, which he demonstrated by papier-maché models, microscopical preparations, and skulls, which he had before him upon the table. The adaptation of the teeth to the food intended for the animal was beautifully exhibited, the theory of natural selection clearly set forth, and the importance of the thorough mastication of food on the part of man, preparatory to gastric and intestinal digestions, was duly expressed.

Dr. Allen referred to the great error committed in altering the proportion of the elements in food, and hurled his anathemas against the unscientific custom into which Americans had fallen of bolting their flour, and thus taking out the mineral elements so necessary to the development of healthy teeth.

Dr. Peirce directed attention to the arrangements of the five jaws and teeth of the "Echinida," or the "Lantern of Aristotle," which, moved by appropriate muscles, serve as reducing organs to the articles of food on which those animals subsist.

## THIRD DAY.

Dr. Truman offered the following resolutions:

*Whereas,* The American Dental Association, at a meeting held July, 1864, used the following language in resolutions then offered:

" *Whereas,* Dr. Horace Wells, of Hartford, Connecticut, in the year 1844, did introduce to the public, in his practice of dental surgery, nitrous oxide gas as an anæsthetic for the painless extraction of teeth, and

" *Whereas,* Nitrous oxide gas, as exhibited by Horace Wells, proved absolutely successful, as is confirmed by abundant documentary evidence at hand, clearly setting forth his claims as the first to bring to public notice any agent producing anæsthesia; therefore be it

"*Resolved,* By the American Dental Association, That to Horace Wells, of Hartford, Connecticut (now deceased), belongs the credit and honor of the introduction of anæsthesia in the United States of America; and we do firmly protest against the injustice done to truth, and the memory of Horace Wells, in the effort made during a series of years, and especially at the last session of Congress, to award the credit to other person or persons;" and

*Whereas,* While desiring to reaffirm our belief in the indisputable character of the evidence upon which this discovery is claimed for Dr. Horace Wells, we are also forced to believe that the dental and medical professions have neglected a plain duty in failing to give some substantial evidence of their appreciation of the inestimable value this discovery has been to the world, and of the estimation with which they hold the memory of the discoverer; and

*Whereas,* We have been informed that the family of Dr. Horace Wells was left wholly unprovided for, and have struggled through the twenty-eight years that have elapsed since the discovery was made; we, therefore, recognize the bounden obligation we are under, even at this late day, to recompense them for the labors of the husband and father: therefore, be it

*Resolved,* That this association most cordially approve of the efforts now being made in the dental and medical professions, to raise a fund to be known as the "Wells National Testimonial Fund," and they would earnestly ask the co-operation of all dental associations in the country to forward this work, and would also impress upon every individual member of the profession the importance of doing all in his power to make this not only a credit to his profession, and a substantial gift to the family of Horace Wells, but an honor to the memory of one of the greatest of the world's benefactors.

Dr. Atkinson said that, however painful it might be for him to disagree with his professional brother on such a point as this, he was forced to pronounce the truth. He could not give his vote to those resolutions for reasons other than humanitarian. He thought that anæsthesia was of the devil, and he could not give his sanction to any Satanic influence which deprives a man of the capacity to recognize law. He wished there were no such thing as anæsthesia. He did not think that men should be prevented from passing through what God intended them to endure. For these reasons he could not support the resolutions, though he was always ready to relieve a suffering family. His affections were with them, but not his higher nature.

Dr. Wetherbee said that he had the honor on a previous occasion to bring forward just such resolutions as these, and they were passed, and that too with the aye of the gentleman who had just taken his seat. He himself was in favor of the resolutions from two considerations: first, in doing for the family they honored the memory of its head, and discharged a duty which devolved upon them; and in the second place, because he was in favor of anæsthesia itself when properly applied. He differed with Dr. Atkinson when he said it was of the devil. What God hath wrought let no man accredit to the devil. It was an agent which had brought great relief to the human family, and they were bound to stand by the fact that from the dental profession it originated, and they were to be jealous of the credit of such a great discovery.

Dr. Atkinson called for the division of the resolutions, so that he could vote for the measures suggested for the relief of the family without being required to give his voice for anæsthesia.

Dr. Forbes moved the previous question, which was sustained, and the resolutions were adopted.

The subject of Physiology was then resumed.

Dr. Judd said that as Dr. Dean's paper had referred to the theory of Dr. Allport, he would take occasion to explain it to the association, as to many of them it was entirely new. He said that it was based on certain observations made by him, which warrant him in the belief that there is a close connection between the pulp at the point where dentification takes place and the tooth substance. At all other points the connection, if any, is exceedingly loose. It is claimed by Dr. Allport that there is none, and that innervation passes only through the initial point of dentification.

Dr. Dickerman here interrupted the speaker with the statement that Dr. Robinson had advanced the same ideas six or eight years ago.

Dr. Judd said that if this were true Dr. Allport would be willing to give him the credit of the discovery. In order to arrive at definite results upon this point, he said that it was necessary not only to understand the histology of the tooth, but also to take cognizance of all the other parts of the system. Their knowledge he held would be very imperfect if there were not other places in the body in which pathological conditions could be studied with more advantage, and which conditions were likewise applicable to the structure of the tooth. For example, in order to study inflammation, it is necessary to take the wing of a bat, the mesentery of a frog, or some other tissue in which inflammation can be produced under conditions which render it capable of being brought under microscopic investigation. In this way a clearer view is obtained. In the next place, it is claimed by Dr. Allport that if you take a tooth with two cusps and four cornua, and cut off one of these cornua, one-fourth of the sensitiveness will be destroyed; if two be taken off, one-half will be lost; if three, three-fourths, etc. He claims to have proved this conclusively. The conclusion in regard to this effect is corroborated by actual experience.

Now, in order to look more clearly into it, a close examination of the nerve fibrils tends to prove that these extend into the two parts of the teeth. It was formerly taught that nerve fibrils never entered the cornua, but now they find that they do. Again, it was supposed that the nerve fibrils never penetrated the sarcolemma, but now they find that on the sheath there is a little eminence, which looks as though the sheath had been drawn up. Into this eminence the axis cylinder was seen to pass. This was called the Doyerian eminence, because first described by him whose name it bears. So that it is established that nerve fibers do go where they were formerly supposed not to go. They had been long taught that no nerve fibers ever penetrated the epidermis, but it has been lately shown that they do pass up into the Malpighian portion of the epidermis. It was also thought for a long time that the nerve fibers terminated in loops, but it has been shown that they pass in between the cells and ramify in all directions into the dentinal tubuli. He stated that it had been claimed that there was a strong connection between these and the tooth substance, if they passed into the tubuli. Now it has never been claimed that a nerve with its medullary substance or its neurilemma, but only the axis cylinder, entered the tubuli. These are not essential to functional activity. They are fibrous structures of extreme tenuity and no tenacity, and were there millions stretched across the tubuli, there would not necessarily be any connection between them and the tooth substance. For they would be like gossamer webs, and liable to be broken up by the slightest disturbance. He did not, therefore, consider it a valid argument to assume the connection between the two tissues merely from the fact that the fibers penetrated the tubuli. If these fibers only pass in at this point, one of two things must take place: either they are distributed by ramification between the cells, or they must go through the pulp canal until they reach the tubuli. Now, the pulp of the tooth lying in the neck, it would be with difficulty that experiments could be made with certainty upon it. It would be exceedingly difficult to be satisfied as to the effect of cutting off the cornual points. The disturbance would sever these web-like nerve fibers, and this would account for the loss of sensibility.

Dr. Truman said that the idea of cutting off the horns of the pulp to destroy sensation was indeed a new one. That there was no connection between the pulp and the inter-tubular tissue he could not believe, because it was contrary to Beale, Ball, and other eminent microscopists, and his own observations had confirmed their conclusions. When a section of the tooth is taken, and the inorganic matter eaten out by hydrochloric acid, the pulp will be left, and the nerve fibers will be seen at the margin. Now, where do these belong? In the tubuli, to supply the dentine. He was satisfied that if the proper examination was made the same results would be reached, and statements should not be made unless they were based upon actual experiments.

Dr. Wetherbee said he had observed facts which militate against the theory. Take the first superior bicuspid with a bifurcated root, one portion dead, the other calcified. If now you cut through and find one-eighth of an inch of living pulp, that portion will be very sensitive. How had nature preserved her integrity? If you look at a tooth with the grinding surface worn down—an incisor for instance—by attrition reduced to the margin of the tooth, do you see this normal condition of nature which protects the pulp continuing? It is decidedly interfered with. He then asked if Dr. Allport claimed a renewal of the tissue. On being answered by Dr. Cushing that he did, he continued by saying that calcification took place, and that, if the calcified portion be cut into, it will be found to be exceedingly sensitive. He wished to know if it was in harmony with the deductions of that theory. Again, if a tooth be split, very few attachments could be found. Now, may not the majority of these have collapsed by extraction? The fact that they do not appear is no proof that they do not exist, for they *have* been seen here in all their beauty and power.

Dr. Judd said that Tomes never claimed that these dentinal fibrillæ were nerve fibers. It was shown by Ball that there were two kinds projecting from the pulp—fibers and processes of pulp substance; and these project into the tubuli. He himself had shown, two or three years ago, that they could pass into the tubuli. In relation to those experiments where the projections of the pulp are shown, he said that, though common, they failed to enlighten them on the points from which they were taken. These might be the cornua. The connection is undoubted at these points, and if there is any at any other points it is exceedingly small. They may be connective tissue, to confine the pulp and prevent from breaking these axis cylinders, which he believed did pass into the tubuli.

Dr. Bogue said that Dr. Allport had experimented on one of his upper bicuspids. The section was broken apart, and fibrillæ were seen stretching from portion to portion, but he did not know what they were composed of. It might be a *post-mortem* product or medullary matter. He thought they had strong reasons for supposing that there was a close connection between the dentine and pulp. He had had occasion to remove the pulp of a central incisor, and apply arsenic. He cut off the pulp and proved the connection between the periphery of the dentine and the pulp. Ball did not pretend to say that the processes extend from the cornuă alone. He nowhere asserts that they are nerve fibers.

Dr. McQuillen said he had an opportunity of examining the specimens referred to by Dr. Bogue, one of them having been presented to him by Dr. Allport. In addition to that, he had made sections himself, in which the fibrillæ could be readily seen. He had suggested years ago that this might be a *post-mortem* result, but did not wish to be considered as positively committed to that theory; on the contrary, was perfectly willing to accept them as nerve fibers when conclusive evidence was offered. He did not tire of experiments and the discussion of this subject as some had, but was willing to "labor and to *wait.*" There was one direction in which he had worked on this subject, with as yet only negative results, and he wished to know if any one present had done anything that way, and met with success He alluded to the microscopical examination of the dentine cut from exquisitely sensitive teeth. If, as was claimed, the pain experienced by the contact of the excavator was due to the presence of nerve fibers in the dentinal tubule, it was reasonable to infer that they should be found in the cuttings from the sensitive part of a living tooth placed under the microscope. He had over and again made such examinations immediately on the removal of decayed and healthy portions from a cavity, prior to the introduction of a filling, but without finding the fibrillæ. He did not present these negative results as conclusive evidence; on the contrary, it was his intention to continue the investigations, and he would suggest to others the propriety of doing the same thing. In connection with this matter it would not be amiss to state that the presence of nerves could be readily demonstrated under the microscope in the soft parts, whether the section be taken from a dead or a living body, or as in amputation or an accident; the Pacinian bodies, and the nerve fibers connected with them, of the hands and feet, for instance, could be easily shown.

Dr. Bogue wished to know how he could submit a live tooth to such investigations.

Dr. McQuillen replied that there was what was known as somatic death, or death of a living being, and molecular death, or the death of a part. Thus a portion of muscle taken from an animal just killed, and examined under the microscope, will contract when irritated for some time, owing to the maintenance of molecular life. With respect to the examination of cuttings from a living tooth, there was no difficulty in that matter to one who was in the daily use of the microscope. With a keen excavator thin cuttings could be readily made. Place these on the glass slide, in a drop of glycerin; then put on the glass cover, and the specimen would be ready for examination. He had no difficulty in distinguishing the dentinal tubuli and interglobular spaces in this way, but could not find the dentinal fibrillæ. In examining the structure of a tooth, it was not always necessary to have a longitudinal or transverse section of the entire tooth. A part, and an exceedingly small one in most instances, is all that is required. By breaking an extracted tooth in a vice, or mortar, and then taking a fine shaving with a sharp knife, or chisel, good specimens for examination could be secured.

Dr. Butler said the specimen could be prepared for examination by planing off a thin shaving and laying it on the slide. With microscopes from five to eighteen hundred diameters he had not been able to detect nerve fibers. He knew, however, that the dentine was sensitive; and whether Allport was correct or not in his views, he knew that at these points there was the greatest sensitiveness and running into the tubuli; it was found to be exceedingly delicate. If the little fibrillæ connect with the tooth substance, it was very slightly.

Dr. Hitchcock was not surprised that the gentleman had obtained negative results, who had spoken of experimenting with teeth that had been broken up. He had tried Tomes' plan, and could not succeed in obtaining any definite results. He had opened a molar, taken out the pulp, placed a portion of it in glycerin and water, with carbolic acid, and then tried twice before he got a definite result. He did obtain a portion, which showed a prolongation into the tubuli. He had also some teeth of puppies, from which he obtained considerable information on this point. Sections of the tooth showed first a circle of dentine; second, dentinal cells of an oval shape, and processes extending into the tubuli. Some were very close up to the substance; the fibers could be seen. He had a section given him by Tomes himself, which illustrated it beautifully. If a fine shaving was made it was very easy to demonstrate it. Ball found two sets of fibers. One set he traced directly into the tooth. Newman shows that these cells may have several fibrillæ. Another class do not go directly into the tooth substance, but by long prolongations ramify about the dentinal tubes, and, curling up, lie loose among the dentinal fibers. He thinks they must run into the tubes, as there is no room for them elsewhere.

After a few general and random remarks, the subject of Dental Physiology was passed.

(To be continued.)

## THE AMERICAN DENTAL CONVENTION.

The eighteenth annual session of the American Dental Convention was held in Boston, commencing on Tuesday, August 13th.

The convention was called to order by Dr. Wm. Dutch, of California, President. Prayer was offered by Rev. Dr. Webster, of Boston. Dr. E. G. Leach, of Boston, made the opening address. Dr. I. J. Wetherbee, of Boston, welcomed the convention.

The Executive Committee recommended that the amount to be paid upon signing the constitution be two dollars, and that the meetings of the convention be from eight to ten o'clock, each morning, for clinical operations, and from ten to one o'clock, P.M., for morning sessions, and from three to six o'clock, P.M., for afternoon sessions.

### *Afternoon Session.*

Dr. Dickerman, of Taunton, read a paper on "Anæsthesia," which was subsequently discussed.

Dr. E. D. Fuller, of Peekskill, claimed that the result of nitrous oxide gas was the opposite of that of chloroform,—the latter carbonizing the blood, while the former oxygenized it, and he could not see how any congestion could follow its proper use.

Dr. G. F. Waters, of Boston, called attention to the fact that nitrous oxide darkens the red corpuscles of the blood.

Dr. W. L. Johnson, of Boston, thought the best plan to prevent nervous shock was to have the patient fully anæsthetized, so as to be fully insensible to the operation.

Dr. Wetherbee thought that the administration of nitrous oxide and chloroform was far too rapid,—it ought to consume treble the time usually occupied. He never liked to hear any man say there was no danger in the use of anæsthetics. He always insisted that any anæsthetic should be taken on an empty stomach.

Dr. G. A. Mills, of Brooklyn, read a paper on "The use of Oval-shaped Pluggers and Heavy Foil with a heavy Mallet."

Dr. J. G. Ambler, of New York, thought that the profession was not so much disposed to use the sharp serrated pluggers, and adhesive foil, but to return to the old, plain, smooth pluggers and the old style gold, light and soft.

Dr. J. J. Anderson, of Springfield, was in favor of the use of heavy foils, with smooth-faced instruments, for most operations.

Dr. Wetherbee favored the use of very finely-serrated instruments, because they increased the adhesive surface, making firmer fillings; he also favored the use of cohesive gold, and believed he thus avoided the liability to break frail enamel walls.

The annual reports of the Secretary and Treasurer were read and approved.

Dr. Ambler, of the Committee on Publication, made a report, asking further time for the publication of last year's proceedings, in order that the important features of the present session may be incorporated in it. The report was accepted, and the recommendation adopted.

## SECOND DAY.

Dr. Mills gave a clinic, illustrating the use of smooth-faced, oval-shaped pluggers and heavy foil, with a heavy lead mallet.

The subject of "Operative Dentistry" was taken up. Dr. Waters described an operation performed by Dr. Coggswell some years ago, in which a tooth was removed from the speaker's mouth, filled, and restored to its place. The operation was successful, and the tooth is still in good condition. He had himself treated eighteen cases, nearly all of them successfully. The treatment consisted in placing the extracted tooth in a weak solution of carbolic acid, to which had been added a small quantity of the tincture of iodine. His experience had taught him that a tooth could be kept out of the mouth a long time, and then be replaced with success.

Dr. S. J. McDougal, of Boston, added his testimony, showing that the operation could not be made successful in every case; two out of five cases he had treated were failures, the teeth becoming loose by absorption of the alveolus.

Dr. Fuller had doubts whether a perfectly healthy action could ever be expected from teeth thus extracted and replaced. He could not believe such a union vital and reliable, though he did not doubt there might be exceptional cases.

Dr. T. Palmer, of Fitchburg, related an instance where teeth thus restored had remained, doing good service for fourteen years.

Dr. G. B. Harriman, of Boston, said that it was easy to see that in old persons and in feeble constitutions such operations would be more uncertain than in youth. There must be a physiological union, or the tooth could not remain a week.

Dr. Johnson certified to the success of such operations, one case in his practice having remained healthy for over twenty years.

Dr. Ambler brought the convention back to the discussion of Dr. Mills's paper. He would not dare fill a frail tooth with 120-gold, and urged caution in adopting new methods.

Dr. T. D. Shumway, of Plymouth, advocated giving up the mallet and adopting smooth points.

Dr. Dickerman thought heavy gold could be used in all cases, and with no danger of imperfect filling, if the work was properly done. He favored light pressure.

Dr. Leslie wished the nomenclature of the profession corrected,—

there is no such thing as hard and soft gold-foil: it is either adhesive or cohesive.

Dr. Shumway believed that small, flat-surface pluggers would fill more gold in a given space than the serrated; thinks the time will come when no dentist will remove a tooth unless it can be extracted with the fingers, without the use of forceps. He fills and saves many teeth which have been discarded by others; uses smooth ivory pluggers mostly, using steel ones only to commence an operation with.

Dr. Leach believed that no operator could fill small hollows in the walls of a cavity as well with the mallet as by hand-pressure.

### *Afternoon Session.*

Dr. Mills spoke upon cleaning teeth, urging the necessity of removing every particle of calculus from the necks of the teeth, and polishing the surfaces cleaned.

Several other gentlemen followed upon the same subject, and earnestly exhorted the utmost faithfulness in this direction.

Dr. Mills acknowledged his obligation to Dr. Atkinson for the idea of using aromatic sulphuric acid for cleaning. At first he was fearful of its effects on the enamel, but now uses it freely.

### THIRD DAY.

Dr. C. S. Hurlbut, of Mass., gave a clinic, illustrating the use of crystalline gold and the automatic mallet.

Dr. Waters made some additional remarks upon the replacement of extracted teeth.

Dr. McDougal did not believe that any vital union ever took place under such circumstances—merely a mechanical union, such as would retain a mineral tooth in the same manner.

Dr. W. B. Hurd, of Brooklyn, did not believe it was a mechanical union, as nature would repel a merely foreign substance.

Dr. O. C. White, of Hopkinton, thought nature tolerated a great deal, as is shown in various surgical operations.

Dr. Fuller supported the idea of tolerance.

Dr. Wetherbee presented a carefully prepared paper upon "Ingrafting Crowns upon Natural Teeth," illustrating his subject by diagrams.

Dr. Fuller opened a discussion of "Dr. Arthur's method of preventing and treating superficial decay," which was participated in by a number of the members.

The following officers were elected for the year:

*President.*—Dr. I. J. Wetherbee, of Boston.

*Vice-President.*—Dr. G. A. Mills, of Brooklyn, N. Y.

*Recording Secretary.*—Dr. Cornelius S. Hurlbut, of Springfield, Mass.

*Corresponding Secretary.*—Dr. M. S. Dean, of Chicago.

*Treasurer.*—Dr. John Allen, of New York city.

The Executive Committee appointed for the year is as follows:

Chairman, Dr. J. G. Ambler, of New York; Dr. C. F. Rich, of Saratoga Springs; Dr. Wm. Dutch, of San Francisco, Cal.; Dr. H. F. Bishop, of Worcester, Mass.; and Dr. C. M. Bailey, of Machias, Me.

The convention adjourned to meet on the second Tuesday of August, 1873, at Saratoga Springs.

## PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

At a meeting of the association held September 10th, the following preamble and resolutions were adopted:

*Whereas,* At the meeting of the American Dental Association held at Niagara Falls, commencing August 6th, 1872, the President held that delegates were not entitled to hold office; and, on an appeal being taken from said decision, it was confirmed by the association; and

*Whereas,* Article 3d, Section 3d of the Constitution expressly declares, "The members of this association shall be of two classes, delegates and permanent members, having equal rights and privileges;" therefore be it

*Resolved,* That the Pennsylvania Association of Dental Surgeons protests against said action as at variance with the original basis of organization, in violation of the Constitution, and an act of gross injustice to subordinate associations.

*Resolved,* That we would urge our sister associations to take such action, previous to the meeting of 1873, as will insure a reversal of said decision.

James Truman, *Secretary.*

# EDITORIAL.

## SYSTEMIC CAUSES OF ODONTALGIA.

Beside the various local lesions conspiring to produce odontalgia, there are general or constitutional causes of pain, manifested in the teeth or surrounding tissues. These causes, not being recognized, have not unfrequently led to the needless sacrifice of important organs. For not only do systemic influences call into activity and intensify the ordinary sequences of local lesions, but where no discoverable local conditions are found to account for the expression, persistent pain or distress, more or less strongly pronounced, is not unfrequently located by a patient in one or more teeth.

The diagnosis of such cases is rendered somewhat obscure by the fact that certain local causes may be concerned in the production of the discomfort, which do not manifest themselves by any lesion of continuity in the teeth or adjacent structures. Such are the exceptional instances of galvanic action, from the proximity in the same mouth of different metals, and the also exceptional instances of granular deposit within the pulp cavity, and of exostosis. Independent, however, of all *purely* local causation, there still remain cases to be accounted for only on systemic conditions.

Of these may be enumerated biliary derangements, dyspepsia, vesical diseases, malarial influences, neuralgia, gout, rheumatism, hysteria, and other neuroses, specific or otherwise, together with various so-called sympathetic manifestations depending upon pregnancy, the establishment or cessation of menstruation, or upon morbid uterine conditions.

More attention has been given to reflex phenomena depending upon abnormal states of the teeth, than to the corresponding phenomena of pain in the teeth as the expression of lesions or interference with function in other organs.

As it becomes the physician to search for the true lesion in the various manifestations of neuralgia, or other morbid expressions, which have so frequently been found to have an unsuspected origin in the dental structures, so it becomes the dentist, failing to discover cause for the expression of discomfort in the teeth themselves, to be able to point out to the patient or medical adviser the probable constitutional aberration which the symptoms suggest.

The derangement of function popularly known as "biliousness," among numerous other manifestations, according to idiosyncracy, not seldom discovers itself to the observing sufferer by the peculiar discomfort produced in the teeth, which, variously described, may perhaps be summed up under the general title of hyperæsthesia.

An attack of dyspepsia is to many more quickly recognized by subjective sensations in the teeth than by any special epigastric disturbance.

In sea-sickness, and in sick headache, the nausea is sometimes preceded by intense discomfort in the teeth and jaws ; sometimes by furious facial neuralgia, which promptly disappears after emesis.

No one can recall the "queer" feeling experienced, especially in youth, in the teeth, from a distended bladder, without recognizing a sympathetic relation between them. Intense dental neuralgia sometimes precedes or accompanies the passage of a biliary or renal calculus.

The writer has met with a case of vesical irritability, in which a very annoying sensation was caused in the teeth when the patient, after sitting or reclining, assumed the erect posture. This sensation was most strongly marked in the morning, after a night's rest, and was coincident with the touch of the feet to the floor. In another case of nervous debility, the approach of a thunder-shower, or other atmospheric variation, always produced a most tantalizing sensation of discomfort in the teeth, as though they were denuded of enamel, exposing sensitive dentine. Relief sought from this condition, by an almost involuntary grinding of the masticating surfaces together, afforded alleviation only by variety in the subjective sensations; the "teeth trouble" being the most prominent indication of the disturbance of harmony.

Hunger will, with some people, excite marked sensations of discomfort in the teeth. A case in point is that of a friend of the writer who, in a convalescence from typhoid fever, was seriously annoyed by painful sensations in two of his molar teeth whenever he became hungry; instant relief occurring after swallowing food. These uncomfortable feelings would rouse him from sleep, and could not be allayed except by the introduction of food, if only a cracker, into the stomach.

A prominent professional gentleman, who, though accustomed to public speaking, is nevertheless timid and nervous before a new audience, has informed me that, under such circumstances, he first recognizes the mental disturbance by peculiar and distressing sensations in his teeth; the feeling being apparently akin to the vesical irritation so generally recognized by others under similar circumstances. This hyperæsthetic condition continues in the case of the gentleman referred to until, becoming interested in his subject, he feels at home before his audience, and insensibly loses the consciousness of discomfort in the teeth.

The singular affection known as brow ague, and which, yielding to quinia, discovers its malarial origin, frequently alternates or is associated with periodic odontalgia in teeth to all appearance perfectly sound. The fact of malarial neuralgia is well established; the explanation may not be so obvious; nevertheless, we can certainly pronounce a disturbance in nervous equilibrium, of which pain is the result.

In neuralgia we have various illustrations of what is called reflex or radiated pain, the cause being in a nerve center, in the trunk of a nerve, in its periphery, in the brain, or by exchange of communication through the sympathetic or ganglionic nervous system. Thus, in neuralgia, having a local causation in a diseased tooth, we may, as the result of reflex action, find its expression in cephalalgia, cardialgia, gastralgia, or other neuroses. By the same methods of radiation—the process reversed—neuralgia having a general or constitutional cause, as malaria; or a central cause, as mechanical injury to or morbid growth in a nerve-center, or in the brain; or a local cause, in the stomach or other viscus, may pronounce itself in the periphery of a nerve in one or more teeth. Neuralgia is therefore, as we understand it, the result of a local lesion *somewhere*, or a specific cause.

The form of odontalgia not inappropriately termed "hysteric toothache," has no discoverable organic change as explanation, though probably dependent upon some lesion of nutrition in the central nervous system as the predisposing cause, and, for its expression, upon emotional rather than physical excitants, being therefore more amenable to mental impressions than to local or general medication,—seeming to respond to the emotional condition of the patient.

Rheumatism or gout may, either by original selection or metastasis to the peridental membranes, produce agonizing pain in the jaws, and either by direct influence, by the sympathy of contiguity, or by neuralgic radiation, pronounce itself so powerfully in a single tooth that it is almost impossible to persuade the patient that instant and complete relief would not follow its extraction.

When pain is located or radiated to one or more teeth, in which there is no discoverable lesion to account for it, an intelligent perception of diathesis and a careful investigation of constitutional conditions will rarely fail to discover the cause.

These illustrations of reflex or sympathetic disturbance of harmony in the teeth are interesting and instructive, as serving to explain the converse manifestations resulting from dental irritation, which, when better appreciated by the general practitioner, will afford explanation of many otherwise obscure conditions.

## THE HASSLER EXPEDITION.

The arrival of the United States Coast Survey steamer *Hassler* at San Francisco, and the conclusion of her voyage, has been announced. The object of that voyage, the circumstances under which it has been made, the liberality of the citizens of Massachusetts who supplied Prof. Agassiz with the funds which have been employed in making his great collection, and the generosity of the Government in proffering the use of the vessel and in fitting her out, are familiar to our readers.

It should be a source of congratulation that our Government has been prompt to give the requisite aid and encouragement to such an enterprise; but we wish to allude more particularly to one feature of the expedition. We have in Prof. Agassiz a man who has devoted a lifetime to science, and who is second to none in his broad and catholic comprehension of its laws, or acute and subtle interpretation of its phenomena; who has applied himself, with almost unequaled concentration of purpose, to the solution of its problems and the unfolding of its mysteries; not allowing himself to be drawn into the channels of personal profit, which would long ago have brought him riches and worldly prosperity, and who has added as much to the knowledge, and consequently to the happiness, of the world as any man now living. We find him, after more than half a century of unremitting work, already in the possession of honors which would satisfy the most ambitious, undertaking a long, tedious, and laborious journey, which has absorbed nearly a year of the life which every day grows more valuable.

Rarely has a scientific expedition been headed by a man of such abilities and experience, and we may feel sure that no slight motive has induced Prof. Agassiz to thus spend his time and energies.

The results are manifest. He has irrefutably established the glacial theory, of which he is the author and principal advocate; he has shown that our present knowledge of the laws of nature is so accurate that we may argue from the general to the special, and, knowing the conditions of life, may predict its character; he has added a volume to the geological history of our continent, and has made collections which place the museum to which he has devoted his later years far ahead, in many important respects, of any similar institution in the world,—none other containing such exhaustless material in the shape of alcoholic specimens for original dissection and scientific research.

Some idea of the additions made by the Hassler expedition may be formed from the fact that three thousand five hundred gallons of alcohol were used in the preservation of specimens numbering one hundred and fifty thousand, many of them hitherto unknown and undescribed. Their value to the comparative anatomist, in the solution of various problems in natural science, will be immense.

The value of such institutions in encouraging a progressive and liberalizing system of education, and in elevating and upholding the tone of the popular mind, cannot be overestimated.

The Hassler expedition will never be forgotten by naturalists. Its success is a national benefit.

## THE UNIVERSITY OF PENNSYLVANIA.

The trustees of that time-honored institution, the University of Pennsylvania, announce that the magnificent structure in West Philadelphia, designed for the Department of Arts, approaches completion, and that the fall term of studies will commence in the new building.

The trustees have also provided for a Scientific School, to afford professional training to those who propose engaging in Mining, Metallurgy, Civil and Mechanical Engineering, and kindred pursuits.

The building for the Medical Department will soon be commenced.

The University Hospital is to be erected at once, the ground having been donated by the city of Philadelphia. One hundred thousand dollars has been donated by the State, and additional subscriptions of more than two hundred thousand dollars obtained from other sources. We rejoice in these evidences of the prosperity of an institution which has done so much for the advancement of science, and feel especial pride in the assurance thus afforded that the Medical Department will, in the erection and endowment of the hospital, possess such vastly increased facilities for clinical instruction as to give it new claims to the patronage, confidence, and affection of the country.

## THE ANNUAL CONVOCATIONS.

The annual meetings of the American Dental Association, the American Dental Convention, and the Southern Dental Association, have been held. Of the first two we present reports. No report of the latter has been received.

The meeting of the association at Niagara was largely attended; many of the representative men of the profession being present, including delegates from Oregon, California, and Canada.

A variety of subjects were freely discussed, with a very general interchange of thought, experience, and modes of practice. Nothing new of special significance in theory or practice was broached; but, notwithstanding, all reports agree that it was in many respects the most interesting meeting which the association has had for some years.

Let us hope that the improvement will continue not only in this, but in all other dental associations; that fraternal courtesy and co-operation will so prevail that the spirit of research may be quickened and extended, and the profession advanced in self-respect, in public regard, and in usefulness.

## BIBLIOGRAPHICAL.

Garretson's System of Oral Surgery. By James E. Garretson, M.D., D.D.S., Oral Surgeon to the Medical Department of the University of Pennsylvania, etc. 8vo, about 1100 pp. Illustrated with numerous Steel Plates and Wood-cuts. Philadelphia: J. B. Lippincott & Co., 1872.

Advanced sheets kindly furnished us by the publishers enable us to speak of this volume coincidently with the announcement of its issue.

Although this may be considered a new edition of the previous work by the author, it is much more than is ordinarily included in the idea of a revised edition. Several chapters have been entirely rewritten, and valuable additions distributed through the various subjects of which the book treats. It is really a new book, and as far ahead, in many important respects, of the previous volume as that was of all works which had preceded it in the discussion of the topics associated under the general title of oral surgery.

This is in fact the only book in print entitled to be denominated a system of oral surgery. This much may fairly be said, without detracting from the merits of the various dental text-books which had preceded it; for, however complete they may have been in the particular sphere which they designed to fill, none have aimed to furnish, associated with ordinary instruction in dental manipulations, compact and comprehensive teaching of the physiology and pathology of contiguous parts with the therapeutic and surgical indications for treatment.

This book, therefore, fills a hitherto unoccupied place in the literature of the profession, and bridges the chasm which has separated dentistry from medicine; for, while it aims to present whatever is directly and practically important in the more ordinary manipulations of the office, even to an extent which to some may seem unnecessary and tedious, it leads the inquirer to a comprehension of pathological and therapeutical truths,—the *rationale* of conditions and of treatment as the author understands them. He has evidently labored earnestly to make the book an exponent of all he knows and believes on the subjects of which it treats.

Whatever may be said of the theories advanced, or the methods of treatment recommended, we think all will allow that the author has studiously labored to induct his readers into an appreciation of principles. This indeed constitutes one of the most valuable features of his teaching.

It will not perhaps be questioned that no man in the profession, in this country at least, was so well qualified as the author to write such a book. He has brought to his work the earnestness born of ambition and conviction, the results of years of untiring study and labor, and an experience such as no other man with whose precedents we are familiar could claim.

The work is truly what it professes to be—a *system*; for whether the positions assumed by the author be conceded or not, his plan has the requisite scope, the natural and orderly arrangement and presentment of topics, which gives a methodically connected view of principles, manipulations, and medication, local and systemic, throughout the range of its bearings. The title expresses the intention of the author, and both title and intention are fairly covered in the execution.

Of its utility, therefore, as an educational book, there can be no question; for it is not only a thoroughly practical consideration of the various physiological and pathological facts belonging to the topics discussed, but the therapeutic indications as well as the manual or operative measures required. The student who wishes .to learn anatomy, physiology, pathology, etiology, therapeutics and mechanics, as connected with oral surgery, finds them here recorded with the acumen which belongs only to accurate and long continued observation, and will also learn the character of the tools with which he will have to work, and the best methods of applying them.

We cannot omit calling attention to the happy faculty by which the author leads his reader, from a consideration of the elementary facts involved, to a full appreciation of the subject treated upon; so that the student can find here rudimentary lessons, and the practitioner, seeking information about complex operations, can fortify himself by precedents. A capital illustration of this faculty is afforded in the author's consideration of tumors. We know of no chapter in medicine in which a complex subject is treated more philosophically; none more successful in rendering an obscure class of abnormities thoroughly comprehensible. No student or practitioner of dentistry can afford to neglect the study of this chapter until he feels himself master of it.

Of course in such a work it would be impossible to present on all points the arguments in detail of other writers, but a succinct epitome is given, in most cases, and, on all important questions, numerous and elaborate foot-notes evince the author's desire to furnish his readers with the observations and conclusions of recognized authorities. To those who have not access to original sources of information, these collations of the researches of modern histological pathologists, and the exhaustive discussion by the author of the various questions which are enlisting the attention of the profession, in the light of recent investigations, will add largely to the value of the book.

That in a book of this size, and treating of such a diversity of subjects, theoretically and practically, locally and systemically, therapeutically and surgically, there should not be found imperfections, could hardly be expected; and there is no doubt the author's theory and practice will be criticised on more than one point. But we leave the work of picking flaws to those who enjoy it, satisfied that the profession has in this book the largest addition which any one volume has yet contributed to its literature; one for which it will owe a debt of gratitude to its laborious author, which we are afraid will not be fully appreciated for years to come. And not only the dentist but the physician and surgeon will find the disorders topographically associated with the dental structures considered with such ability and fidelity, that the work must surely find a place in the library of every professional man, of either class, who desires to be fully posted on the subject therein discussed; for certainly no other volume of which we have knowledge treats, as does Dr. Garretson's, these various lesions in their relation to other lesions with which they are frequently connected, and upon which they not seldom depend.

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DISEASES OF THE THROAT: A GUIDE TO THE DIAGNOSIS AND TREATMENT OF AFFECTIONS OF THE PHARYNX, ŒSOPHAGUS, TRACHEA, LARYNX, AND NARES. By J. Solis Cohen, M.D., Lecturer on Laryngoscopy and Diseases of the Throat and Chest, in Jefferson Medical College, Philadelphia, etc., etc. 1872. 8vo, pp. 582, with 133 Illustrations. W. Wood & Co., New York.

.The subject matter of this volume may be considered as a continuation, so far as the topographical relation of parts treated of is concerned, of that embraced in Dr. Garretson's System of Oral Surgery; for, though in a few instances the same subjects are discussed by both writers,—as for instance, cleft palate, certain affections of the tonsils and of the nasal passages—yet, in the main, Dr. Cohen's work treats of subjects which, while belonging to the same oral cavity discussed by Dr. Garretson, are beyond the scope of the plan of the latter.

Under fifteen general headings, with more than a hundred subdivisions, we have a discussion of the various subjects enumerated in the title, treated with that minuteness of detail which should characterize a special treatise.

It is the production of such books—exhaustive as near as may be of a limited field of research—that evinces the intensely practical character of the age. We tire of deductions from general descriptions, and are satisfied only when we can see for ourselves; and hence invention is busy in the effort to illumine or bring into light parts naturally in shadow. That Dr. Cohen has been enthusiastic in his study of the appliances for this purpose, is manifest by the completeness of his epitome of the subject.

Following a review of diseases of the throat in general, our author proceeds to treat of instrumental diagnosis, with the illustration and description of the simple tongue-depresser as the first expression of the desire to explore the parts, which culminated in the invention of the laryngoscope. Then follow illustrations and descriptions of the various devices for assisting in the examination, either by direct or reflected solar or artificial light, and the means to be adopted for overcoming impediments in their employment.

The regional anatomy and histology of the parts and the normal appearance of the structures are then carefully described. Having made his reader familiar with the appliances and methods of *seeing*, as well as with what he may expect to see, the chapters following are devoted to the consideration of pathological conditions of the parts and the therapeutic and surgical treatment required, discoursing on a multitude of matters which makes his work of interest to the dentist, or rather to that class of practitioners denominated by Dr. Garretson Oral Surgeons.

A specialist, Dr. Cohen is a medical man in the scholastic sense of the term, and his descriptions and deductions give proof of a range of thought by no means confined to his specialty, the book before us being evidently the result not only of long and close observation, diligent research, and extensive experience, but of general professional culture.

We cordially commend the book as a compact and comprehensive exposition of subjects of which every dentist should aspire to at least a fair comprehension.

We shall look with interest for the appearance of a volume announced as in preparation by the same author, on the defects of voice and speech, with a physico-physiological consideration of the formation of the voice and the mechanism of speech.

# PERISCOPE.

On the Influence of Phosphorus upon the Organism.*—Dr. George Wegner (Virchow's first assistant) has an elaborate paper upon this subject in Virchow's *Archives* of June 22. The first portion is devoted to a brief discussion of acute phosphorus poisoning, in which nothing new is developed, unless it is that the whole arterial system to the microscopic arterioles is affected equally with the central organ, the heart, by the fatty degeneration that follows the ingestion of a lethal dose of the poison, and as a result of this, excessive uterine hemorrhage occurs in menstruating subjects, with also hemorrhage in the ovaries. Dr. Wegner then discusses our knowledge of chronic phosphorus poisoning, which rests chiefly upon the monograph of Von Bibra. (Die Krankheiten der Arbeiter in den Phosphorzündholz-Fabriken. Erlangen, 1847.) Von Bibra fed rabbits for months with phosphorus, but without satisfactory results, as nothing definite was developed.

As is well known, the usual recognized symptom of chronic poisoning is necrosis of the jaw; but in January, 1871, the following case came under Dr. Wegner's notice:—

A fringe-maker, eighteen years old, had received a severe contused laceration of the right leg, from a wagon-wheel. The patient, until a short time previous, had worked from his fourth year in a match-factory, without showing, however, any indications of suffering from the phosphorus. Whilst the wounds were granulating there came on hospital gangrene, and after this was cured by the use of strong caustics there were developed high fever and gangrenous periostitis of the tibia, which bared the bone to the knee-joint. Finally amputation through the thigh was performed, and at the operation it was noticed that the periosteum, although normal in appearance and thickness, was but slightly adherent to the bone. Afterwards it separated from the femur clear to the trochanter minor, so that there was left six inches of dead bone, and the patient finally died of hectic exhaustion.

At the *post-mortem* there were found gangrenous periostitis of the lower third of the amputated femur, with commencing central and cortical necrosis, putrid osteomyelitis, metastatic infarctions of lungs, kidneys, liver, spleen, and muscles, phlebitis, etc. After maceration there was revealed hyperostosis of the skull, slight ossifying periostitis of the alveolar edges of both jaws, with the teeth intact, and more pronounced osteoporotic layers upon the epi- and apophyses of the extremities.

This case caused Dr. Wegner to experimentally study the subject, and as the effects of the phosphorus fall chiefly upon the digestive system and the bones, his results are told under two heads.

Influence of phosphorus on the digestive system.

If a rabbit be fed upon gradually increasing doses of phosphorus, or exposed to air loaded with its vapor, there is, after some weeks or months, under proper regulation of the amount ingested, developed a hyperæmia of the mucous membrane of the stomach with hemorrhagic infarctions, and finally the membrane becomes three times as thick as normal, and has a brown color. Simultaneously there is induced in the liver a chronic inflammation, which affects the *interstitial tissue.* This affects first the cellular tissue surrounding the acini, causing hyperplasia of it, and finally atrophy of the gland-cells by pressure, with previous arrest of secretion by pressure upon the vessels and ducts. The organ becomes swollen and livid, sometimes remaining so, sometimes undergoing gradual transformation into the classical hobnailed liver, sometimes changing into a shrunken, irregular mass, deformed by contracting bands.

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* We are indebted to the Editor of "New Remedies" for this article from advanced sheets of the October number of that journal.—*Ed. Dental Cosmos.*

Influence of phosphorus on the osseous system.

Dr. Wegner divides this heading into: 1. *Experiments in which the vapor of phosphorus is brought immediately into contact with the periosteum.* 2. *Those in which the drug simply reaches the periosteum through the circulation.*

No. 1. If rabbits are exposed for some weeks to an atmosphere of phosphorus vapor, after the first state of bronchial irritation, they usually become accustomed to it, and do not seem to suffer, and in the macerated skull the only abnormality to be seen is a fine osteophytic periosteal layer upon the nasal bones. In a very few cases, however, bony swellings appear in the upper or lower jaws, with great enlargement and caseous infiltrations of the soft parts, which changes constantly increase until the animal's eating is so interfered with that it starves to death. After maceration there are found in such jaws enormous osteophytic growths, generally starting from the alveolar margin, and in the lower jaw involving the whole horizontal ramus, in the upper often extending to the nasal, lachrymal, and even frontal bones; there is also partial necrosis of the original bones—in a word, changes similar to those seen in man under like circumstances.

The fact that both in match-makers and animals only a small proportion of those exposed suffer points to an individual predisposition. This has been found, in man, generally to be caries of the teeth, sometimes a wound of the jaw; and in rabbits Dr. Wegner has found the same rule to hold good. If a piece of mucous membrane be snipped off the inside of the jaw of a healthy rabbit the wound soon granulates, but if the animal is being exposed to phosphorus vapors the changes previously noted are set up. That the action of the phosphorus is a local one, Dr. Wegner thinks is shown by the following facts: 1. The periosteal changes do not occur when the phosphorus is given in pill-form, even when the periosteum of the jaw is severely wounded after and during the continuous administration of the drug for months. 2. When the tibia is partially bared in the healthy rabbit, by removal of soft parts, a granulating wound results in the healthy animal, but, under exposure to the phosphorus atmosphere, periostitis similar in character to that which occurs in the jaw.

From these experiments Dr. Wegner draws the conclusion that the phosphorus necrosis of match-makers is a purely local disorder, and not the expression of a constitutional affection.

No. 2. If an animal be fed with doses of phosphorus too small to affect the stomach and liver for a length of time, certain changes are induced in the bones,—changes which appear sooner and are more marked in growing animals than in adults. At the position where spongy tissue ought to be formed in the growing bone, dense, solid tissue arises, which, to the naked eye and microscope, reveals the structure of well-formed bone. The spongy tissue already formed does not change; it is the new bone whose formation is altered. If the feeding be continued, the dense mass at the end grows larger and larger, and the old spongy tissue, in accordance with the physiological law, is absorbed to make room for marrow-tissue, until at last the bone has no spongy tissue left. After this the solid newly-formed tissue itself begins to be absorbed; the oldest, first developed portions are changed into red marrow-tissues.

During the feeding changes also occur in the bony substance formed by the outer periosteum; the new bone looks normal, but under the microscope is seen to be filled with dense masses, which encroach upon the Haversian canals, and finally there is a general narrowing of these canals, which affects even the bone formed before the taking of the phosphorus.

In regard to the effect on the bones of the regular ingestion of phosphorus from birth to adolescence, Dr. Wegner made some experiments without very satisfactory results; he explains at length the great difficulties which beset such inquiry, but we have not here space to follow him. Suffice it to state, that the indications seem to be that development is hastened, and still more doubtfully that the actual mass of the bones is increased.

If small doses of phosphorus be given continuously to the adult animal, the spongy tissue in the long and short bones is thickened, and the compact tissue rendered more dense. After a time new bony tissue is deposited on the inside of the shaft of the long bones, encroaching upon the marrow cavity. This may continue until the bone actually becomes solid. The process does not go on *pari passu* in the different bones. The general course is, tarsus, tibia, bones of the forearm, femur, humerus. There is no corresponding hypertrophy of the muscles, and the movements of the animal become, in consequence of the weight of the bones, very slow and awkward. The analysis of the bones shows that their constitution is about normal.

Dr. Wegner occupies some pages with the discussion of the therapeutic effects of phosphorus on osteomalacia and rickets, but has had no sufficient opportunities to arrive at any definite conclusion. He, however, states, as the result of experiment, that the callus thrown out after fractures, resections, etc., is more dense when phosphorus is given than it is under other circumstances, and that the formation of new osseous tissue is also accelerated.

*Theory of Chronic Phosphorus Poisoning.*—Dr. Wegner, after discussing the theories of acute phosphorus poisoning briefly, and pointing out the difficulties of the subject, proposes the question: Is it phosphorus or one of its compounds (and if so, which one) in the blood which causes the symptoms of chronic poisoning? When phosphorus is taken into the stomach, he says, it is evident that it must be absorbed, either as phosphorus, phosphuretted hydrogen, or phosphoric acid; and as the second of these compounds would of necessity undergo immediate oxidation as fast as formed or absorbed, the question is narrowed down to the other two. He has found by experiment that it is impossible to produce by the administration of phosphoric acid in any way or quantity the peculiar changes in the stomach and liver seen in chronic phosphorus poisoning: a chronic gastro-intestinal inflammation may, indeed, be set up; but it is catarrhal, non-specific, entirely distinct from the nutritive changes of phosphorus poisoning; further, the liver is never affected by the acid.

The influence on the bony system is not so clear, because it is possible by the continuous administration of very large doses of phosphoric acid to cause thickening of the bones of growing animals Yet to do this 800–1000 times the proportional dose of the acid is required; smaller quantities have no effect, and it appears most reasonable to believe that the phosphorus acts as phosphorus simply.

The next question Dr. Wegner approaches is, whether phosphorus acts directly by a specific action on, or irritation of, the bone-forming tissues, or indirectly by offering more phosphates to them. He decides that the action is a direct one, for the following reasons:

First. The newly-formed tissue of chronic phosphorus poisoning certainly is in its first stages soft, cartilaginous. Second. There is no excess of phosphates in the bone even after the most prolonged use of the drug. Third. When the food is deprived of lime the same new tissue arises, but it remains in the soft cartilaginous condition. Dr. Wegner finally closes his essay with a discussion of the bearing of his discoveries upon the therapeutic use of phosphorus.—*New Remedies.*

THE EFFECTS OF SYPHILIS ON THE MOUTH AND TEETH.—The syphilitic affections that immediately interest the dentist are those of the teeth and hard palate, while incidentally the affections of the mucous membrane of the mouth and tonsils, of the muscular tissue of the tongue and soft palate, come frequently under his observation.

Syphilis has not been shown to produce any effect on the shape or structure of the deciduous teeth peculiar to that disease, though ill-formed and rapidly decaying milk teeth are sometimes seen in syphilitic children. So far as my observation goes in these cases, disease of the skin, etc., has been manifested not later than fourteen days after birth; and, as usually happens in such early cases, the course of the disease was severe. The alterations from the normal shape of the teeth consist chiefly in their small size generally, in irregular nodular prolongations of the cusps of the molars and early caries of incisors and molars, beginning at the neck, causing rapid disintegration of the crown, and leaving the fang ready to drop from the socket. But these changes, as pointed out by Mr. Hutchinson in his paper on "Malformation of the Teeth as indicative of Diathesis" (*Path. Trans.* 1859), may be attributed to stomatitis, which affects the nutrition of the teeth while they are growing, and are not peculiar to syphilis, though the stomatitis itself is due to that malady. Mr. Hutchinson has noted that the upper central incisors among the temporary teeth suffer most severely and most frequently from this caries. On the other hand, the canines escape caries, and are usually of normal shape. In five or six cases, however, Mr. Hutchinson has remarked the four canines to have been worn away at the upper part of the crown, as if by attrition, which, leaving the neck and contiguous part of the crown unchanged, rubs down the remainder into a rounded peg. This alteration appeared to me in two cases that came under my observation rather to give the canines the appearance of having been dipped for a short distance in strong acid, which had dissolved away a considerable part of the crown; and that this peculiar shape is a result of dissolution rather than of wear. For this reason, it would appear to depend more on soft texture of the tooth than on a mechanical process. Mr. Hutchinson mentions that in one instance he noticed something of this attrition on a deciduous molar in the mouth of a syphilitic child. I have noticed the same also on the left upper canine in a child of four years, several of whose molars were carious, and who was suffering from enlarged cervical glands in consequence. There was no history or trace of syphilis in this instance; and, consequently, it would appear probable that other states than the syphilitic may produce even this peculiar eroded condition of the deciduous teeth. Passing from these consequences of stomatitis in syphilitic children during or before the first dentition, we come to the more characteristic effects of syphilis upon the permanent teeth, and here again nothing material has been added to the discoveries of Mr. Hutchinson.

Stomatitis is, doubtless, a principal agent in producing syphilitic pegged teeth, but it must not be supposed that the teeth are necessarily influenced by syphilis; children may show nothing peculiar about their teeth, in whom the course of the disease has been long and severe. It is an interesting point to determine whether stomatitis is an invariable accompaniment of syphilitic change in the teeth, or whether their development is affected by some occult influence of the poison without exciting active inflammation in the sacs of the teeth. My impression is, that the stomatitis has always been present when syphilitic teeth are produced, and indeed that it is essential for their development.

The peculiar changes from syphilis affect all the teeth, though usually it is only the upper incisors, and of these especially the central pair, that are so altered as to be the evidence of syphilis. The teeth are often dark in color, though this is not invariable; they are short, stumpy, and wrongly set in the jaw, being either convergent or divergent. Being smaller than normal teeth, they leave spaces, and are seldom closely set in an even row. Their development is also arrested, hence they want the angles and cusps of the natural teeth. For example, the upper central incisors, the most characteristic of the disease, have no acute angles at their chisel edge, but are rounded toward the apex, so that they are broadest near the necks; thus, from softness of the dentine, their cutting edge is worn to a crescent, the surface of which is either flat or inclined upward and forward, instead of upward and backward, as in normal teeth. Nor is softness of the dentine the sole cause of this crescentic edge; there is incomplete development. If a tooth be observed directly it is cut, the cutting edge is seen to consist, so far as it is formed at all, of a minutely serrated border, the serrations being processes of dentine that have stopped in their task of filling out the form of the tooth. In use, these serrations quickly wear away, and the scooped-out cutting edge is produced. This want of normal width at the cutting edge, the narrowing of the transverse diameter at the edge, and the irregular position of the tooth in the jaw, together, give it the likeness to a peg, that has obtained for these teeth their name. The other incisors resemble this description more or less, but seldom so completely as the upper central pair, and no observation is yet recorded of their escaping when the less frequently altered teeth show marks of syphilis. The lateral incisors often escape any great alteration, and when altered are not always notched, but only narrowed at their cutting edge, and still more closely resemble ivory pegs.

The canines are less characteristic than the incisors, but they do not attain their proper shape; they are short, flattened at the points, or end in one or two small rounded tubercles. Their outward surface, too, generally presents some trace of the attrition that flattens their naturally rounded surface, showing that they are likewise of the same soft texture as the incisors. The development of the teeth may be so retarded that they project but less than half their distance above the jaw, and, when so small, show rounded tubercles of dirty yellow ivory rather than teeth, to which they have little resemblance. These extreme cases of malformation are seen most frequently in the upper central incisors. —*Berkeley Hill, Esq., in Monthly Review of Dental Surgery.*

THE USES OF PUS IN THE ANIMAL ECONOMY.—1st. It is the method by which dead exudation corpuscles and fluids assume a condition allowing of their subsequent removal by a channel which is not necessarily injurious to the system at large, as they would be if permitted to enter the blood, to be expelled by the emunctories.

2d. It is the method by which the before mentioned matters so collected together, when, from favoring circumstances, they cease to produce irritation in their vicinity, are absorbed or removed by the emunctories; the solid parts first having undergone a fatty transformation, owing to the influence exerted on them by the free circulation of blood in the walls of the abscess.

3d. It is the method by which dead exudation material finally becomes incapsulated. The abscess ceasing to produce inflammation in its vicinity, the free circulation of blood in the abscess wall exerts such changes in the composition of the fluid parts of the pus as permit of their absorption without injury to the health of the solid part, which cannot be so dealt with, and which becomes inspissated in the form of innocuous substances, such as fat, phosphate of lime, carbonate of lime, and other salts, united by an indeterminate animal matter.

4th. It is the method by which tissues of all kinds, when deprived of their vitality, are reduced to a fluid capable of easy removal, as the contents of an abscess.

5th. It is the method adopted by nature to assist vital absorption in amputating dead tissues, either externally or internally.

6th. It is the method which assists ulcerative absorption, so termed, in bringing an abscess to the surface; one portion or side of the abscess wall becoming gradually thinner as the abscess points.—*Dr. A. P. Reid, Canada Med. Journal.*

THE NERVES OF TASTE.—A fresh contribution to our knowledge of this subject has been given by Dr. Ph. Lussana, in the last number of the *Archives de Physiologie,* his views being based on pathology. He gives the details of an Italian peasant woman from whom Dr. Vanzetti twice excised a portion of the lingual nerve. Two years afterwards it was found that the tongue was normal in form, nutrition, and color on the affected side, but had entirely lost its gustatory sensibility, sweets and bitters being alike unperceived. This result he points out might have been anticipated by our knowledge of anatomy, since it is known that the lingual alone ramifies in the mucous membrane of the anterior part of the tongue to the exclusion of the glosso-pharyngeal, which is distributed to the posterior region of the lingual mucous membrane alone. He next proceeds to show that the gustatory fibers of the lingual nerve *do not come from the fifth*, and this he proves by adducing cases of complete paralysis of the fifth, yet in which taste was perfectly preserved. They come from the seventh, as is shown by the loss of taste when the facial was divided or paralyzed, and are, in fact, contained in the chorda tympani.—*London Lancet.*

Saliva.—The action of the saliva in turning the starch of the potato into sugar is tolerably well known to students of popular science; but few among the ordinary reading public are aware that this saliva consists of a variety of fluids, some of which prepare or predispose the food to change, while others merely serve mechanical objects. Of these the saliva secreted by the parotid glands contains a peculiar ferment named ptyaline, and this principle is the only agent in saliva which has the power of transforming starch into sugar. The diastase of malt has a similar action, and a knowledge of this fact led Baron Liebig to employ diastase in the preparation of a food for infants "brought up by hand," which food supplies efficiently the want of ptyaline and alkaline fluids in the digestive juices. But little is known of the character of saliva in disease; that it is very materially affected cannot be doubted, and further research will probably throw more light on the subject. It is known that the administration of mercury causes a change in its constituents; several medicinal salts, such as iodide of potassium, pass very readily into the saliva from the blood, and, as is well known, the saliva is the bearer of the poison of hydrophobia. From these facts we derive information of a nature probably unthought of by many; for if ptyaline be the only substance in the human economy which can turn starch into sugar—for the gastric juice cannot, and the pancreatic fluid has only a trifling influence in this direction—we see at once how necessary and important it is to thoroughly masticate all food containing starch, not only in order to obtain the full nutritive value of what we eat, but also to prevent overloading the stomach with a mass of food, much of which is probably indigestible.—*Scientific American.*

Ether *vs.* Chloroform.—Every week gives us substantial proof of the fatality of chloroform in operative surgery. A certain degree of anxiety, therefore, must always be present in the operator's mind, from which he cannot free himself, even if an equally competent person administers the anæsthetic. If these propositions are not true, then there is no force in what I have here to say. I do not advocate the use of ether because I come from the city where its employment in surgery was discovered and promulgated, but because I believe that there are others, like myself, who do not desire to run the risk of killing a patient with chloroform, and who, perhaps, would gladly avail themselves of ether, were they rendered as familiar with its administration and harmlessness as we are in America. Let me be clearly understood. I use and advocate ether, because it is as effectual as chloroform, and not dangerous to life. I should not hesitate to use chloroform, though perhaps not so freely as ether, did the latter not exist. As we have ether, I cannot feel justified in using chloroform, and never have done so. I should not unless forced to; therefore it is that I desire to induce others to familiarize themselves with the use of ether. I believe that those who now use chloroform exclusively, and who can never do it without danger to the patient, would employ ether did they understand how to do so. I would unhesitatingly say, that I think this is largely the reason why ether is not made use of, and I opine there is some indefinable dread of it, caused by the fatality of chloroform, simply because ether is an anæsthetic. Now I here desire to say, at once, that I believe it is difficult to kill any one with ether, and that death never occurs accidentally while it is being inhaled. The accumulated evidence on this point is sufficient for me, at least, as the accumulated evidence of the fatality of chloroform is sufficient to deter me from ever using it, unless forced by necessity. That ether is more difficult to take and administer, I recognize and appreciate as well as any one. I do not wish to be harsh with my medical brethren, either at home or abroad, but I cannot but think that the disagreeabilities of ether induce some to run the risk of the use of chloroform, which may be fatal; when, who can foretell? I do not propose to enter into any discussion as to the action of ether, or the special methods of using it. I would, however, here say, that many of the disagreeabilities of ether—nausea, vomiting, and headache—may be avoided or mitigated by the patients taking no, or but a light, supper the evening previous to the operation, and absolutely *no food whatever* the morning of the operation, which should, if possible, be done not later than 9 or 10 A.M. Ether, at the worst, is but a profound intoxication, and not unlike a drunken fit. On the other hand, thousands inhale it without trouble, as proved by their anxiety to take it a second time if necessary. A towel rolled into a cone, with a napkin or sponge pushed to the top of the inside, is all we need to pour our ether on, whilst our fingers can mould it over any mouth and nose. Some years ago I often heard in Europe medical gentlemen say, "But there are so many people who cannot take ether." I have yet to see one. The truth is, I believe, that surgeons who use chloroform are afraid of ether, and do not dare to give enough of it at once in the commencement. Now, if the patient is warned that the ether will choke him, and told when this occurs to take long breaths to relieve it, and not to struggle and endeavor to push away the sponge, many will go to sleep quietly and without trouble to themselves or the surgeon. I have but one other point to speak of in reference to giving ether. When the patient, whether old or young, struggles, and asks for a respite and fresh air, do not yield. Hold them down by main force if necessary, and, at any rate, keep the sponge tight over the mouth and nose till they finally take long breaths, and then soon go off into ether sleep. Doing this prevents their remembering anything about their struggles. It is absurd to stop the ether and try to reason with adults, excited by the anæsthetic, and cruel not to push on quickly with children. This may sound almost puerile to my American brethren, but my personal experience tells me that those who use chloroform have somehow a sort of dread of ether, as if it was to be suddenly fatal, and hence fail to give a patient enough to intoxicate him quickly. This arises from lack of familiarity with its use and administration.

In ophthalmic surgery there are several special reasons for the employment of ether. In the first place, death during any other surgical operation might be allowed to pass without creating undue or severe comment, but no community would let pass without it a death occurring from any anæsthetic during the extraction of cataract, an iridectomy, or the removal of the globe. A possible fatal result is not included in ophthalmic surgery. In my own community I should not care to have a patient die from chloroform under my hands, and be myself tried for manslaughter afterwards. The prosecuting attorney could put scores of surgeons on the stand, whose evidence to the jury would be unanimous, that I might have employed ether, which is not fatal, and hence the responsibility of the fatality of chloroform rested entirely upon me. It would be an ugly case. Another argument for ether is, that it leaves the mind of the ophthalmic surgeon entirely free from any anxiety or thought of the anæsthetic. When the operation does not require him to have an assistant, he may dispense with one to administer the ether, and give it himself, as a little care will enable him to avoid benumbing his fingers with the cold, and any bystander can hold the sponge over the patient's mouth while he sleeps. I do not mean that an assistant is not a convenience, but that, with ether, we may dismiss thought for the patient's pulse, etc., since blueness of the face over which we are working tells us when to take off the sponge and when to re-apply it. Moreover, operations are very frequent in ophthalmic practice, and an assistant to whom we may commit the administration of chloroform is not always at hand or readily obtained, whilst the necessity for immediate operation may, from various causes, be very pressing. For myself, I find there are but few ophthalmic operations which I hesitate to undertake alone under ether, when compelled so to do. I do not find that medical gentlemen feel thus about chloroform. Here let me answer by *experience* the *theory* that ether will not act favorably in many ophthalmic operations, in consequence of the nausea and vomiting liable to follow its use. In the ophthalmic hospital with which I am connected, some fifty Graefe's extractions are annually done, almost always under ether, without the subsequent nausea and vomiting, provided this takes place at all, seeming to interfere with the usual course of the recovery or the final result. Some three hundred other operations are also performed under ether. We never use chloroform. I will say nothing here of the use of ether in the general hospitals of my own city, as I desire to confine my remarks to ophthalmic surgery, in which I consider ether a blessing to both surgeon and patient. Finally, I would sum up what I mean, and would here say that ether is never fatal in surgery; it can always be used in ophthalmic practice, as it does not interfere with the operation or its results, it allows the operator to work alone if compelled to, and free from thought of the patient's condition. I admit that it is not so pleasant to give or take as chloroform. With those who can administer this latter without anxiety, and can rest at peace with their own conscience and the community in which they live after a fatal case under their hands, my remarks can, of course, have no force, and for such they are not intended.—*Joy Jeffries, M.D., at International Ophthalmological Congress, The Lancet.*

A New and Safe Method of Administering Chloroform.—Under the above title Mr. W. Crooke, M.R.C.S., says, in the Australian *Medical Gazette*, November, 1871:

About the commencement of the present year, while proceeding down Collins Street, I was hailed by Dr. Gillbee, who informed me that he was going to operate on a brother medico, and wished me to give him chloroform. On entering the operating room, I found my old friend, Dr. Bragge, of Hawthorn, who was suffering from a furunculus, situated over the glutæus muscle. I tendered my services, which were as quickly rejected, Dr. Bragge stating that he could do that little job for himself. Amused, rather than disconcerted, by his refusal, I watched with interest the way he did the business. After preparing for the operation, he settled himself on the sofa, leaning partly on his elbow, and, pouring a small quantity of chloroform on a handkerchief—certainly not more than thirty drops—he began to inhale very gently for about two seconds, then suddenly proceeded to inhale with the utmost energy, forcing inspiration to the fullest extent of the chest's capacity. After a few such inspirations, he fell back on the sofa perfectly insensible. Dr. Gillbee had to make a very deep and (what would have been) painful incision, so as to include the base of the tumor. Dr. Bragge never moved during the moment the operation was being done; and in an equally short time he was sitting up and chatting in his usual manner. The inhalation, operation, and perfect recovery did not occupy more than thirty seconds. This was something new to me. I had never seen chloroform taken with such perfect impunity, nor the effects pass off in such an incredibly short time. I recognized at once the advantage of this mode of administration. The few preliminary quiet inhalations accustomed the sensitive mucous membrane of the bronchial tubes and air-cells to the impression of the chloroform vapor, thus preventing Richardson's first danger, namely, syncopal apnœa; and, by applying a minimum quantity of the narcotic to a maximum extent of absorbing surface, effected by deep and rapid inspiration, a full and perfect anæsthetic effect was produced with a quantity of chloroform far too small to incur the slightest danger from the second mode of death—epileptiform syncope.

I had at that time under my care a man suffering from malignant ulcer, accompanied by abundant fungoid growths; these growths occasioned intolerable pain, and relief could only be given by reducing them at intervals with the actual cautery. These operations necessitated the use of chloroform; and so great was his tolerance of the drug, when administered in the slow manner I was accustomed to employ, that I had often to use as much as two ounces of chloroform to render him insensible. The operation occupied so much time that I had frequently to leave him to attend to other engagements before consciousness was restored. This, I admit, was a most reprehensible practice; as, had he died in my absence, either from the third or fourth cause of death mentioned by Richardson, which was highly probable, namely, paralysis of the heart, or depression from the action of chloroform and surgical shock, my position would not be very enviable. On the next occasion my services were required for this case I put in practice the lesson I learned from Dr. Bragge, and with less than sixty drops of chloroform I was thoroughly successful in completing the operation—one of the most painful that can be imagined, and had the patient safe and conscious before I left the house.

I adopted the same plan with equal success on several occasions subsequently, but these I will pass over, to give my own personal experience of the effects of this mode of administering the drug. About six weeks since, I was attacked with most violent inflammation of the upper jaw, caused by the presence of decayed stumps, which had remained *in situ* for years without giving me any annoyance. The pain was agonizing, and could not be relieved by the ordinary means. Although satisfied that extraction was the only remedy, I was so shattered and ill from three days' and nights' torture, that I could not muster the courage to get them taken out without some protection against further suffering, and determined to use chloroform. Never having taken chloroform in my life, I confess that my misgivings in the matter were pretty strong. On calling in the dentist, and stating my wish to have chloroform, he strongly objected to administer it without the presence of another medical man, and it was with some difficulty that I got him to consent by offering to administer it myself, and freeing him from all responsibility as to the consequences.

Having placed myself in a suitable position, I poured out not more than thirty drops of chloroform on a handkerchief, inhaled gently for a few seconds, then as rapidly as I could. The sensation of passing into unconsciousness (a most agreeable one) followed immediately, and I woke up just in time to see the dentist removing the second stump from his forceps. I was perfectly insensible to pain. The whole affair occupied but a few minutes. I felt neither pain, sickness, headache, nor any other inconvenience, after it was over.

The last case I will bring under your notice is that of a delicate, nervous lady, who, in her seventh month of pregnancy, was suffering from an attack similar to that I had recently endured myself. She shrank from the idea of having the offending stump removed, and bore the torture caused by its presence for over a week. Seriously alarmed lest it might cause premature labor, she was urged to allow chloroform to be used, but not until thoroughly exhausted by suffering could her consent be obtained. The method already described was adopted, and in less than two minutes from the first inhalation she was sitting up on the sofa, relieved of her tooth, perfectly cheerful, and free from any unpleasantness arising from the operation.

I think the cases I have detailed prove that the method of administering chloroform—for the knowledge of which I acknowledge my obligation to my friend, Dr. Bragge—is safer and more satisfactory than the slow and harassing mode generally used; that it reduces to a minimum the chances of danger from the first and second modes of death described by Dr. Richardson, namely, syncopal apnœa and epileptiform syncope; and, if successful in averting these, the most urgent and frequent causes of danger, it must prove still more efficacious in relation to the third and fourth, namely, paralysis of the heart and depression with surgical shock, as the saturation of the system by prolonged inhalation of the drug must be considered the chief cause of these dangers, which dangers the small quantity administered by the plan I recommend would prevent.—*Half-Yearly Compendium of Med. Science.*

ADMINISTRATION OF ANÆSTHETICS.—"How long does it generally take you to put a patient under ether? and in what proportion of cases does vomiting occur during or after its administration?" These are questions which have been repeatedly asked of the attending surgeons of this institution, and which have heretofore been answered somewhat indefinitely, for want of more exact information on the subject.

I was therefore requested to note down, in each case, the length of time from the first inhalation of ether to the commencement of the operation, and the occurrence or absence of vomiting. The number of cases observed and noted having reached one hundred, I have concluded to place the results of my observations before the profession. They are as follows.

Average length of time occupied in producing anæsthesia, 5.84 minutes. The shortest time recorded is one and a half minute, and that was in the case of a child; the longest is twenty minutes; in that case the patient acted badly, the ether having to be "let up" from time to time, in consequence of his becoming asphyxiated.

Vomiting occurred in forty-two per cent. of the cases.

The quantity of ether consumed was not noted; my impression is, that the average was from four to six ounces.

In most cases the patient had eaten no dinner, the inhalations occurring during the afternoon.

As a rule, we advise patients, who are to be operated upon, to abstain from solid food for at least four or five hours before the operation; not because we believe them any the less liable to be nauseated by the ether, but because we wish to avoid the possibility of their being choked to death by such large pieces of unmasticated and undigested meat, potato, pickled cucumber, etc., as we have sometimes seen ejected from the stomachs of patients who had disregarded our injunctions.

Liquid food, on the other hand, such as milk, gruel, etc., may, we think, be partaken of with safety, and will only necessitate the having at hand a large basin in which to catch it when rejected from the stomach.

In giving ether, a newspaper cone, lined with a towel, is always used at this hospital. The cone should be *short*, so as to be as little as possible in the way and in the light. It should be *thick*, so as not to be easily saturated with ether; for, when the paper is wet through, it cannot be made to retain its proper shape, but has an unpleasant tendency to collapse, and asphyxiate the patient by direct contact with his nose and mouth. For obvious reasons, great care should be taken to bury the points of the pins used in constructing the cone.

Three persons are generally necessary in giving ether to an adult—one to manage the cone and the patient's head, and an assistant on each side to hold him in case he struggles violently. This they can best accomplish by placing one hand on his shoulder, while with the other they seize his wrist.

The vast majority of hospital patients resist more or less violently during the stage of excitement, while the reverse seems to be true of the more intelligent and better-trained cases met with in private practice.

The cone should be held a little way from the patient's nose while he takes the first two or three inspirations, so that the ether may be at first largely diluted with air. He will esteem it an act of kindness, and will be less apt to begin to resist as soon as the cone is closely applied. The struggling once commenced, however, more ether should be poured into the cone, the air more perfectly excluded, and the patient hurried through this disagreeable stage as rapidly as possible. His countenance should be narrowly watched, however, and his breathing assiduously attended to. The moment his face commences to assume a purple, or dusky hue, the ether should be at once removed, and the tongue drawn well forward by means of a tablespoon-handle, or whatever else may be convenient. This is usually sufficient to reëstablish a healthy breathing, and due oxygenation of the blood. But, if it fails, we at once resort to artificial respiration, and dash cold water in his face. I have never seen a case requiring more active measures. I have seen only three or four cases where the patient had to be turned on his side, and have cold water dashed in his face.

In Dr. Agnew's service I have given a mixture consisting of one part of chloroform and four parts of ether to thirteen patients. The average length of time in producing complete anæsthesia was three minutes. The average quantity of the mixture consumed was two ounces. Vomiting occurred in only three cases out of the thirteen. Three patients had eaten their dinners, but in neither of these did vomiting occur.

The last patient to whom we gave this mixture acted very badly under it. He stopped breathing once or twice, and his face exhibited that peculiar dusky hue due to a deficiency of oxygen in the blood. The usual means, however, soon restored the breathing, but vomiting set in, and became so persistent that the doctor was obliged to defer the operation.

The general feeling among the surgeons of this institution seems to be that *chloroform is dangerous*, and that its indiscriminate use as an anæsthetic is unjustifiable.—*David Webster, M.D., Surgeon to Manhattan Eye and Ear Hospital, New York, N. Y. Med. Journal.*

PHYSICAL DISEASE FROM MENTAL STRAIN.—Dr. Richardson's three discourses on Practical Physic were delivered on different occasions to audiences of medical men. They bear evidence of much thought and originality, and will abundantly repay a careful perusal.

In the first discourse, on Physical Disease from Mental Strain, the author urges the fact that most physicians study the diseases of the body from a point of view too exclusively physical; that they overlook or under-estimate the invisible agencies which through the mind affect the body for good or ill. It is not claimed that even hard mental work is productive of evil results, provided that work is carried on with evenness and order. The danger is shown to consist in extreme strain or shock. The various classes of mental workers are briefly referred to, and their special kind and degree of danger pointed out. The diseases resulting from shock or strain are divided into two classes: "There is a distinct class in which the mental shock stands out as the direct and only cause of the malady, and there is another class in which the mental shock or strain appears only to excite or exaggerate symptoms of disease which pre-existed." After alluding to these diseases somewhat in detail, the author says: "Respecting insanity, I doubt whether it is ever the result of simple mental overstrain; on the contrary, I take it to be rather an upshot of extreme mental inactivity; but when the tendency to it is pronounced, then mental strain excites the malady." The object of the author throughout this discourse is simply to show the relation of mental to physical disease from a point of view the opposite of that usually selected in considering this subject. The author believes that "the origin of insanity, as a concrete fact, is rather to be sought for in inactivity, hereditary and individual inactivity of brain, than in exercise of brain; and that excessive exercise of brain is a cause not of mental, but of physical derangement." He says further: "Our uneducated, cloddish populations are, in short, as I venture to assume, the breeders of our abstract insanity, while our educated, ambitious, overstraining, untiring mental workers are the breeders and intensifiers of the worst types of physical disease." There is doubtless much truth in this view, but it seems to us that it should be somewhat modified by the consideration that a large proportion of the "cloddish" and uneducated class live and work in the open air, and have a decided advantage, as regards physical exercise and simplicity of habits, and hours of sleep, over those who occupy a higher position in the social scale. This may partially account for the comparative freedom of one class from physical ailments to which the other appears especially liable. It must be admitted, however, that mental inactivity is a condition fraught with more danger to the mind than the opposite one of constant activity. It is not obvious that mental toil, as such, is productive of so much physical disease as Dr. Richardson supposes, for some share of that disease must certainly be attributed to the surroundings and conditions pertaining to those occupations which are chiefly mental.—*Richardson's Discourses on Practical Physic, Journal of Psychological Medicine.*

Uses of Carbolic Acid.—From the facts laid before the reader, we think that the conclusions are justified—

1. It is not proven that carbol is a general disinfectant.
2. It is of the greatest use to disinfect wounds.
3. It accomplishes this (*a*) by destroying pus, etc.; (*b*) by preventing inflammation.
4. Its use in wounds moderates pain.
5. Its use on the skin relieves itching, and produces an anæsthesia sufficient for minor cutting operations.
6. It seems to be of use internally, in certain cases, in scaly skin diseases, and at least as a moderator of pain in cancer.
7. It has not proved of decided use in other diseases.—*J. H. Bill, M.D., in Am. Jour. of Med. Science.*

Toothache.—The following formulas are commended by M. Magilot, in *Lyon Médicale*, January, 1872:

1. Take of Chloroform,
Sydenham's Laudanum, āā 2 parts.
Tincture of Benzoin......... 8 "
Mix.

2. Tincture of Aconite,
Liquor of Holland ($C_4$
$H_4$ C $C_2$)..................āā 2 parts.
Tincture of Benzoin......... 8 "
Mix.

3. Take of Chloroform,
Creasote (or pure carbolic acid),
Sydenham's Laudanum, āā 2 parts.
Tincture of Benzoin......... 8 "
Mix.

These preparations, dropped on cotton, are to be put in the cavity of the tooth. No. 3 is decidedly the most active. The benzoin being precipitated by the saliva in the tooth, retains the active ingredients.

A mite of chloral put into the cavity, and closely covered with a piece of white gutta-percha, or a pledget of cotton, previously soaked in dammar varnish, is most efficient in toothache.—*New Remedies.*

Removal of Tumor of the Lower Jaw.—Dr. Quinlan presented photographs illustrative of a new method of removing tumors of the lower jaw, and two specimens of osseous growths removed. The first specimen was from a man, aged 48. Seven years before, a hard swelling appeared on the left lower jaw. When the patient came under observation, a large and very hard tumor extended from the coronoid process to the angle of the inferior maxilla. It was evidently an outgrowth from the outer table of the bone, and was remarkably resonant on percussion. An incision was carried parallel to the horizontal ramus, the surface of the tumor was laid bare, and with a Butcher's saw Dr. Quinlan succeeded in isolating a thick shell of very dense bone. This was taken away, and the periosteum covering it was carefully replaced. Very satisfactory results followed. The second case was that of a girl, aged 20, whose right lower jaw had become the seat of a periosteal outgrowth about eleven months before. The tumor was comparatively soft, elastic, dull on percussion, and apparently full of fluid. The skin was well drawn up before the incision was made, the other steps of the operation being the same as in the former case. The outer table of the bone was removed, the periosteum accurately replaced, and the wound united with sutures. The patient recovered, with scarcely any mark of the operation, and with a strong jaw-bone. —*Pathological Society of Dublin, British Medical Journal.*

BONY TUMOR.—Mr. Annandale showed a small, hard tumor which he had pulled out of the lower jaw of a patient, who had never developed the molar teeth of that part of the jaw. The operation was managed without incision or injury of the jaw. The tumor was found microscopically to resemble the substance of a tooth.—*Medico-Chirurgical Society of Edinburgh, British Medical Journal.*

OSSEOUS CYST OF THE LOWER JAW.—There is at present to be seen in the wards of Dr. Verneuil, at Lariboisière Hospital, an interesting case of tumor of the jaw. The patient is a man twenty-seven years of age. The tumor is situated on the right side of the lower jaw. Externally it presents the size of a large pigeon's egg, and is quite painless, even when pressure is exerted. It is depressible, soft, and elastic in certain parts, and hard and bony in others. It forms part of the jaw and is immovable upon it. It has taken about a year to reach its present size. Near the tumor is the carious root of a molar tooth. M. Verneuil does not hesitate to classify this tumor with the osseous cysts described by Dupuytren. The idea of a dental abscess must be excluded, as there has never been any pain, and as the tumor is quite independent of the gum; indeed there can be no doubt that it is seated within the bone. On the other hand, there are no symptoms to suggest the idea of a cancerous tumor. M. Verneuil proposes to puncture the tumor with the aspirating syringe, so as to examine the contents of the tumor, and thus add to the safety of his diagnosis. He will then cut off a bit of the tumor from the surface which it presents in the mouth, with the object of bringing on suppuration within the tumor, and thus promoting a healing process.—*Hôpital Lariboisière, The Lancet.*

MEDIAN FRACTURE OF THE INFERIOR MAXILLARY BONE CURED BY OSSEOUS SUTURE.—A man, aged twenty-nine years, fell from a dray of which he had charge. A fracture of the lower jaw, situated between the first and second incisor teeth on the left side, was the result of this accident. The direction of this fracture was vertical. The gums and the buccal mucous membrane were much torn. The fragments, separated by an interval of about one centimetre, were very movable. Ligation of the teeth, and the application of a gutta-percha splint moulded over the alveolar border, were carried out, but with no success. On October 11, suture of the inferior maxilla was practiced in the following manner.

At a point about a centimetre external to the fracture the left fragment was pierced by a perforator, at the end of which was a hole through which a silver wire could be easily passed. When the perforator had passed beyond the posterior surface of the maxillary bone, the wire was passed through the hole, and then brought forward by the needle to the front of the jaw. The right fragment was then perforated in a similar manner. The two fragments could then be brought into exact coaptation by means of the wire suture which formed a loop behind them. The anterior surface of the gum was then covered by a small plate of gutta-percha, over which the two ends of the suture were twisted. The fracture was maintained in a state of perfect reduction. The maxillary bone was perforated near the extremities of the dental fangs and in intervals between these. This operation was not followed by any bad symptom. At the end of twenty-seven days the fracture was consolidated. The suture was withdrawn on the 7th of November.—*Half-Yearly Abstract of the Med. Sciences.*

NECROSIS OF SUPERIOR MAXILLA FOLLOWING CANCRUM ORIS.—Henrietta M., aged 7, admitted May 8, 1872; discharged, June 25; days in hospital, 48; cure. In consequence of a severe attack of cancrum oris, this child has since that attack suffered from a very fetid discharge from the mouth, and foul breath. The angle of the mouth on the right side is much dragged upward and backward by a band of adhesion, the result of the healing after ulceration. The band is very firm, and the alveolar edge of the superior maxilla is felt to be bare from the canine fossa to the last molar.

May 17.—Under chloroform Mr. Wood easily removed an irregularly shaped piece of bone by slight traction with the sequestrum forceps. No hemorrhage.

The child did well; the fetid discharge and offensive breath ceased, and granulations rapidly sprang up, filling in the fossa left by the operation. The distortion of the mouth, however, remained.

On June 4 the adhesion was divided, and the soft parts were freely dissected up from the bone, so as to free the angle of the mouth, causing, however, a raw surface of a somewhat triangular shape. Mr. Wood then dissected up a flap of mucous membrane of corresponding shape from the lower lip near the angle of the mouth, and turning it up, attached it so as to cover in the raw surface, using two wire sutures. The mucous membrane adhered perfectly, and the aspect of the face immensely improved. The mouth is very nearly symmetrical.—*Med. Times and Gazette.*

EPITHELIOMA ROUND THE MOUTH.—The whole of the lower lip and the outer thirds of the upper were a circular mass of epitheliomatous excrescences. Two years before, Sir Wm. Fergusson had removed a small cancerous tumor from the man's lip, and for some months there was little appearance of the return of the disease. It did return, however, and involved both the lips and the soft structures of the lower jaw. It seemed to be beyond the reach of human aid; but, instead of trying to check it by caustics, Sir. Wm. Fergusson determined to take all by a clean sweep round the mouth, leaving a larger gap than before, but prolonging, if possible, the patient's life. Some of the teeth were extracted, and the disease was taken away piecemeal from the mouth. Two actively bleeding arteries were tied, and the edges near the nose brought together, as in the operation for harelip. There did not seem to be any general extension of the disease indicated by the swelling of the cervical glands. What was left of the lower gum in front was quite denuded of any covering; this was simply dressed with lint. The disease had caused absorption of parts of the lower jaw to make room for its own growth. These cavities thus formed were cleared out with a gouge. It might have been expected that the bone would simply have itself undergone the cancerous degeneration. Sir William did not hold out much hope for the unfortunate patient, but believed that, if he did not die in consequence of the frightful wound now inflicted on him, he would live for some time with very much greater comfort than he could possibly have done with the disease in his mouth and face.—*Clinic King's College Hospital, Brit. Med. Jour.*

# HINTS AND QUERIES.

Reply to "Metallic."—"What is the best method of fastening teeth with rubber on gold plate?"

Swage your gold plate and fit it to the mouth; then grind up and antagonize your teeth on the plate. When fitted, "wax up" the same as rubber-work; then with a sharp pointed instrument—such as a drill—run down and mark the gold plate at seven different places on the inside, where the wax is thickest.

Then insert the case in your flask, and after separating you can very easily take the gold plate from the plaster by heating a little.

Now bend pieces of platina or gold-wire in the centre, one-eighth of an inch long, so that the ends turn up when soldered on the plate. Solder your pins or hooks at the places you marked with the drill; after they are soldered, drop a little wax on them, and fit the plate in the flask to ascertain if any are so high that they strike the teeth and prevent the flask from coming together; if they are, you can file them off until it comes down.

Then pack your rubber, and vulcanize.—W. H. H.

Reply to "W. C."—"What is the best mode of preventing the dark lines at the junction of sections of gum teeth?"

I may say, first of all, that it is absolutely necessary that there should be some inducement in the way of remuneration to compensate one for the time spent in close manipulation and care from the commencement to the end in the production of a *good* set of teeth in rubber. In grinding to the cast, use simply wax enough to hold the blocks in place while arranging the teeth, allowing none to get about the joints, only at the rivets of the teeth, and none under the block, so that you can readily see by the plaster on the block where it bears the hardest; grind out with small wheel, and fit as close as possible to the cast, except where there is considerable absorption of the alveola. The blocks should be joined as closely upon the inside as the outside, or as nearly as possible. When the teeth are arranged to suit, and the joints air-tight, then grind out a very small but very acute V-shape upon the inside. Then, grind the upper (or lower as the case may be) edge of the blocks, beveling the slant outward, so that the edge or corner of the bevel be on a line all round; then wax the upper edge of block, leaving the wax a little flush of the gum for finishing. In that way you secure the blocks sufficiently at the upper edge, and have a joint that is neat, looks well, and allows no possibility of food collecting. The inside of the two front blocks are ground in similar manner, making a square joint where the rubber joins the block. In waxing up to invest in plaster, leave as nearly as possible one thickness of wax (thin black wax), and make that as smooth as wax can be made, remembering that the work put upon the wax is saved upon the rubber in finishing. Then proceed to invest, and when the plaster in the lower part of the flask is sufficiently hard, varnished and oiled, dip the whole in water, so that when you pour your plaster it will not blubber, and will run into every crevice and adhere closely to the teeth. Leave in plaster three days, to give it time to thoroughly harden.

When you separate the flask, remove the wax as carefully as possible; straighten it out; place it upon the sheet of rubber; mark and cut out as per wax pattern. Pack in the V-shape, at the junction of the block, a piece of cotton thread a little longer than the joints, and fasten the ends in the plaster; paint over the joint and thread with collodion; pack in a few strips of rubber around the rivets of the teeth; then pack or place in your piece of rubber cut, as per wax pattern, which of course just fits, with a few small pieces of extra rubber to make sure that you have enough; then, after heating sufficiently, screw the flask together as close as originally, and before putting into the vulcanizer give each of the screws a turn back at least one-fourth of the way; the vulcanizer after previous using having been washed with soap and hot water, the flasks the same, and rubbed with an oiled cloth. The water in the vulcanizer must be perfectly clean.

If this plan is carried out, there is very little finishing after coming out of the vulcanizer, and you have joints that, after the plate is finished and wet with the saliva of the mouth, cannot be seen at all; and even if they *should* open a little, the thread is forced in a little farther by the pressure of the rubber, and does not show.—E. C. MOORE, *Detroit*, *Mich.*

DR. G. ELLIOTT, Meadville, Pa., in reply to an inquiry for a cement that would answer for aquaria, gives the following formula, which he has tried and found satisfactory: Four pounds resin, four pounds Spanish whiting, two pounds tallow.

CONFESSING my ignorance, I respectfully ask information as to the precise mode of applying the rubber dam; by what means the muscles of the lips are kept from coming in contact with it, and dragging it out of position; how it is forced down between large molars that are squarely and firmly set together, and which are so large and strong, and their surrounding parts so firm and unyielding, as to render wedging of questionable propriety.—INQUIRER.

ON FORMING CLASPS FOR TEETH.—I noticed in the DENTAL COSMOS, August number, among the articles selected, one in regard to forming clasps or bands for teeth. I would say in regard to the method proposed that I introduced to the profession a method of making clasps similar to the one quoted thirteen years since. The article describing the method may be found in the *American Journal of Dental Science*, 1859, April number. As it may be of interest to some of your readers, I will quote from the article referred to:

"We will present the reader with our method for forming a perfectly fitting clasp, broad or narrow. We in the first place secure an accurate form of the tooth to be clasped; next proceed to make a pattern of the clasp desired; we next cut from a piece of platina (rolled quite thin) a clasp; we burnish this clasp to the form of the tooth, carefully removing the same from the model. We place upon a piece of coal, placing through the imaginary centre a tack; we fill the enclosed space with sand and plaster; borax well the surface, cut scraps of gold plate as we do solder, place them upon the clasp frame, and with the blowpipe run them over the frame; build up the clasp to desired thickness. By this method a perfectly fitting clasp is formed, which will need no bending to adjust it.

"We have formed our clasps as described for three or four years, and we conceive a tooth cannot be injured when thus formed; the adaptation being so perfect as to exclude all foreign matter from penetrating between the tooth and the clasp; it is in fact almost impervious to the fluids of the mouth."—T. D. THOMPSON, D.D.S., *Providence*, *R. I.*

THE

# DENTAL COSMOS.

VOL. XIV. PHILADELPHIA, NOVEMBER, 1872. No. 11.

## ORIGINAL COMMUNICATIONS.

## DENTAL PATHOLOGY AND THERAPEUTICS.

BY J. FOSTER FLAGG, D.D.S.,
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(Continued from page 526.)

IN the second part of Mr. Bell's work, which is devoted to "diseases of the teeth," including dental gangrene (caries), salivary calculus, diseases of the gums and alveolar processes, abscess and tumors of the antrum, extraction of teeth, and neuralgia, while some portion of the material remains standard, other parts serve only to contrast unfavorably with the information which experience has given us to direct present practice. The proposition which he advanced, changing the term "dental caries" to "dental gangrene," has met with no support on the part of more recent authors, and, indeed, he perceived a difficulty, when in writing of "dental necrosis" he concluded to *avoid confusion* by considering "*dental necrosis* as indicating the death of the whole tooth, as *gangrene* has been applied to its gradual mortification and decomposition."

Mr. Bell originates and advocates the theory that gangrene (caries) *invariably* commenced on the external surface of the tooth-bone, underneath the enamel; that it was inflammatory in its character; that it was dependent upon the vitality of the tooth-structure for its continuance, and that the progress of the disease was modified by the physiological considerations pertaining to the involved tissues. While giving "inflammation" as the true proximate cause of dental gangrene, he wrote well of the remote or predisposing causes, referring to hereditary tendencies, infantile diseases, mercurialization, strumous diathesis, fevers, and dyspepsia, as examples of these.

Ignoring the supposed danger to teeth from cracking the enamel by alternates of hot and cold applications, he advanced the accepted theory of the present, that these alternations were injurious through their action as true vital irritants, thus inducing marked and frequent deviations from a normal condition of circulation. He referred to exposure of tooth-bone from want of enamel, the result either of imperfect formation or accidental removal by fracture, as a cause of gangrene, and also touched upon one portion of the "mechanical theory of caries" in alluding to that crowded condition of teeth which produced such mutual pressure as resulted in the breaking down of the crystalline structure of the enamel and thus exposing the living tooth-bone. He denied positively the possibility of transmission of decay from one tooth to another by contact, and combated the chemical theory of caries, by stating that it was impossible that any chemical agent should be evolved in the destruction of one tooth which could occasion the decomposition of another, and that even if such were possible, it could not do harm, because a perfect tooth was so protected by enamel as to prevent such emanations from irritating the living portion of such sound tooth.

In ardently supporting his theory, he errs in stating that *every part* of the crown of a tooth appears to be *equally* liable to gangrene, and then mentions the very localities upon both molars and incisors (even the laterals) which had been adduced by the advocates of the external "chemico-mechanical" theory as strong proof of the truthfulness of their views.

He concludes his chapter on "causes" by referring to the assumption of two distinct kinds of gangrene; denying this, and showing that the differences in appearance and rate of progress are due to individual considerations alone.

From our standpoint of the present, it is curious to note the variety of practice based upon this author's theory, some good, some questionable, some bad; as he tells us, "In the first place, fluids should never be taken into the mouth, or at least should not be applied to the teeth, either so hot or so cold as to produce the slightest pain; and the water with which the mouth is cleansed should, in the winter, be always warm or tepid." What advice could be better? And, again, when in cases of crowded teeth he directs the passing of a *very thin* file between them, in order that while thus the pressure is relieved, the whole thickness of the enamel should *not* be removed, but that a perfect (?) covering of this substance should be preserved to protect the bone from external agents; what practice is more decidedly bad? And, again, when he states that "the complete removal of all the carious matter is an essential requisite" for the successful arrestation of the progress of decay; and further, that "when gangrene has once actually commenced, it is always very doubtful, even in the most favorable cases," as to the possibility of effectually staying its progress; we must consider such teachings as more than even questionable, and as opposed to all experience resulting from skillful operating.

Although applications of alcohol, spirits of camphor, alum, dilute muriatic acid, nitrate of silver, rapid thorough puncture, and the actual cautery, are mentioned in connection with exposure of the "nerve" or "lining membrane," as the pulp was variously termed, still it is evident that all beyond that, in dental pathology and therapeutics, was, up to this time, utterly vague. Thus, while it is to Mr. Bell that we are indebted for the term "alveolar abscess," so called by him in order to more "correctly designate its true nature and situation," he further informs us that it arises from "cold or some other local cause," etc., "but by far its most general cause is a dead tooth or root," while we now recognize that this is not so more than once in fifty cases, and perhaps not oftener than once in a hundred cases. Under such circumstances, it seems to me the more wonderful that so much that is truly correct and useful should have been presented to the minds of the advanced practitioners of "half a century ago," and that it should be ours to freely recognize this and gratefully thank them for it.

It was about this time, however, that interest in microscopic dental physiological research seems to have greatly increased, and the highly scientific investigations of Arnold, Purkinjé, Raschkow, and Retzius, were rapidly followed by the results of the labors of the equally distinguished Owen, Goodsir, Nasmyth, Tomes, and Beale; operative dentistry has been well discussed by Harris, Tomes, and Taft, while Harris and Richardson seem to be authority in mechanical dentistry. But, in the midst of all this throng of earnest workers, no one contributed anything deserving the name of *scientific*, in the pathological direction, until Arthur (1853) issued his "Treatment of Dental Caries complicated with Disorders of the Pulp," in which is first given a proper dissent, experimentally and argumentatively, to some of the stereotyped fallacies of even the present dental text-books. Almost twenty years have testified to the correctness of this author's peculiar views, and practice based upon them is gradually becoming more and more extended. Later still (1869) we have that admirable work, Garretson's "Diseases and Surgery of the Mouth, Jaws, and Associate Parts," which has so ably and so happily engrafted the specialty of dentistry upon its mother-tree of medicine.

Having thus sufficiently placed in view the long and weary travail which has been necessary to bring the literature and practical experience of our specialty up to its present condition, I now propose offering sufficient material in the direction of dental development to assure a mental appreciation of gradual changes occurring in that progression which gives us, from the tooth-germs, those formed organs which, when diseased, we are called upon to treat.

## DENTAL DEVELOPMENT.

At an early period of fœtal life, generally conceded to be about the sixth week (following Mr. GOODSIR), indication of commencing dental development is *perceptible* in the appearance of what is termed the "primitive dental groove," the location of which is between those rudimentary structures which are to eventuate in the superior lip and palate (upper jaw). This is followed, in a few days, by an analogous groove formation pertaining to the lower jaw.

The stages of dental development are divided into four,—1st, papillary; 2d, follicular; 3d, saccular; 4th, eruptive. In the progress of these, development pertaining to the upper jaw takes precedence in the first three stages, but in the process termed "eruptive," the teeth of the lower jaw are usually in advance of those of the upper.

At the seventh week of fœtal life there is found a slight raising of the mucous membrane, at the bottom of the superior groove, *on either side* of the arch; these indicate the presence of the tooth-pulps beneath, which pulps consist of a blastema, hyaloid in its structure; these in their growth form two papillæ, which are the papillæ of the temporary anterior superior molars. They are followed in a day or two by the corresponding papillæ of the lower jaw.

At the eighth week the papillæ of the temporary cuspids are observable.

At the ninth week the papillæ of the temporary incisors are in position.

At the tenth week we find the papillæ of the temporary posterior molars; thus at this time we have within the two grooves the developing pulps of all the twenty temporary teeth.

Between the tenth and thirteenth week it is noticed that septa are formed across the grooves, between the papillæ, thus inclosing them in open cells, which are termed follicles, and thus we have the tooth-pulps passed through the papillary stage and entered upon the follicular. During the thirteenth week the various pulps assume characteristic shapes, somewhat analogous to those of the fully developed teeth.

Concomitant with this assumption of shape on the part of the pulps, we have the commencement of the development of opercula or overgrowths, which, increasing in size much more rapidly than the papillæ, soon *almost completely inclose them.* There are two of these opercula for each of the incisor follicles, three for each of the cuspids, and four or five for each of the molars.

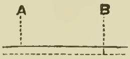
At this time (fourteenth week) the "secondary dental groove" begins to make its appearance, in the shape of small depressions, *above and posterior to* the partially inclosed temporary papillæ; the mucous membrane dips into the depressions; the papillary pulps of the permanent central incisors appear first under the mucous membrane of their respective depressions, followed by those of the laterals, cuspids, first bicuspids and second bicuspids in their respective positions. The opercula now (fifteenth week) close the mouths of the follicles, adhesion and coalescence soon take place, and the tooth-pulps are passed from the follicular stage to the saccular. During the progress of these changes in that portion of the dental grooves occupied by the germs of the twenty deciduous and twenty anterior permanent teeth, the posterior ends of the superior primitive groove have still remained open, and it is in these that, at about the sixteenth or seventeenth week (fourth month), we have the appearance of the developing papillæ of the first superior molars of the permanent teeth. In the lower jaw, a little later, the permanent molars are developed from the posterior portion of the secondary dental groove, instead of the primitive, as in the upper jaw.

At about the eighth month, additional elongation of the grooves (upper, primitive; lower, secondary) has taken place, and the papillæ of the second permanent molars are observable. Again, in the course of time, when by the growth of the jaws sufficient space has been afforded, other cavities of reception are formed, and, the papillæ of the third permanent molars (wisdom teeth) presenting, their development proceeds as has that of their predecessors.

*Review.*—Early in fœtal life grooves appear at the sides and afterwards in the anterior part of both jaws, behind those rudimentary structures which are to become lips. Papillæ soon after become observable within these grooves,—first at the sides of the mouth, afterwards in the anterior portion, and again at the sides, posteriorly. These papillæ are the dental pulps covered by mucous membrane. Septa and opercula are developed, which gradually form follicles and afterwards cells, inclosing the growing pulps. From the posterior surface of the follicles containing the temporary teeth, depressions are formed which develop into secondary grooves containing the germs of the anterior permanent teeth. The primitive groove (superior) elongates and gradually affords space for the posterior superior permanent teeth. The secondary groove (inferior) elongates and gradually affords space for the posterior inferior permanent teeth. The order of the appearance of the papillæ of the temporary teeth is,—1st, first molars; 2d, cuspids; 3d, central incisors; 4th, lateral incisors; 5th, second molars. The order of the appearance of the papillæ of the permanent teeth is: 1st, first molars; 2d, central incisors; 3d, lateral incisors; 4th, cuspids; 5th, first bicuspids; 6th, second bicuspids; 7th, second molars; 8th, third molars. The dental papillæ appear in the upper jaw before they do in the lower jaw.

The papillæ of the permanent teeth are not "outgrowths" from the papillæ of the temporary teeth, but have a distinct, though contiguous, origin.

Having thus given the accepted views in relation to the birth and growth of the temporary and permanent teeth as such, I shall now consider the development of an individual tooth, premising that, although much is still what we see, yet we now enter upon *theoretical* statements, which should necessarily be promulgated and received with due allowance and proper caution.



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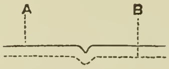

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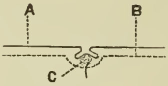

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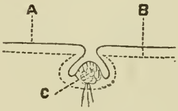

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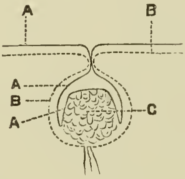

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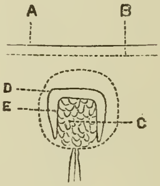

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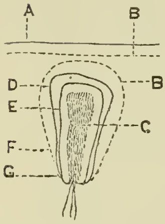

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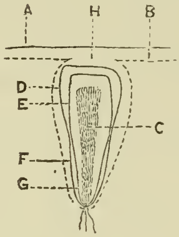

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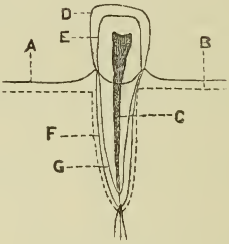

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Granting that at conception the "germ" is so constructed as to contain the rudiments for full formation, it is not until the fœtus has the development pertaining to three or four weeks that the rudimentary mouth is perceptible. At the *fifth week* we have the microscopic tissue which is represented in diagram 1 as rudimentary mucous membrane, A, and rudimentary periosteum, B.

At the *sixth week* a little depression is found to exist upon either side of the rudimentary jaw, into which dip the rudimentary mucous membrane and the rudimentary periosteum. This depression continues its growth until the half circle is complete and it reaches from side to side and across the anterior portion. I have said that the germs of the anterior temporary molars appeared first (seventh week), but I propose following the development of the *inferior central incisor*, both from the fact that as a single-root tooth its formation is more simple, and that it is normally the first tooth erupted.

(To be continued.)

# ARTISTIC DENTISTRY.

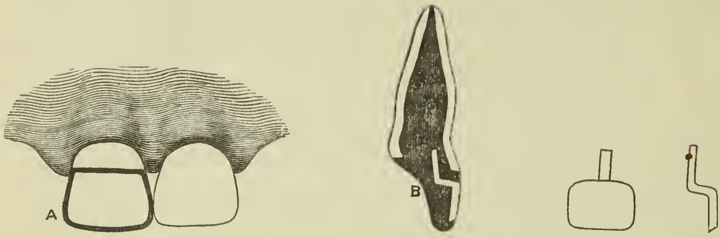
BY M. H. WEBB, D.D.S., LANCASTER, PA.

The restoration of the contour of a tooth wherein caries has so extended as to cause the breaking up of the crown, is an operation not usually adopted by practitioners, in consequence of the conspicuous appearance of large gold fillings in the anterior teeth. To construct a contour filling in an artistic manner is quite an art; but to so arrange it that it will not only correspond as nearly as possible with nature in form, size, and strength, but in *appearance* also, is the *ultra-ultimatum.*

The nearest approach to such reconstruction was described by Dr. Charles J. Essig, of Philadelphia, in the May number of the Dental Cosmos for 1871. Two-thirds of a right superior central incisor had been broken off, and this portion restored by the insertion of a quadrangular gold tube in the pulp cavity and filled around with gold. A part of a porcelain tooth was then adapted or fitted by pivot, so that the line of the artificial in apposition with the remaining portion of the natural tooth was almost invisible. This was preferable to the exposure of a gold filling, but not so permanent, and may be classed among the operations of inserting artificial teeth by pivot, yet was superior to these, because the remainder of the fractured tooth was not removed to or beneath the margin of the gum, as in common practice, and was, therefore, less subject to morbid influences.

Having had a case almost like the one described, but the antero-posterior diameter of the tooth at the fractured point not being such as to permit the adaptation of a part of a porcelain tooth attached to a gold backing, the writer decided upon a method different from that adopted by Dr. Essig.

A Miss, fourteen years of age, presented in March last, having had two-thirds of her right superior central incisor broken off transversely by a fall three years before, which having been wholly neglected during that time, a large portion of the dentine became carious. No abscess had formed, the peridental membrane having maintained its normal condition. The root was partially filled with gold soon after the patient presented herself, and in May the original form of the tooth was restored with gold, but for a better appearance a nicely adapted piece of porcelain was inserted in the labial surface, and was held in position by the gold which incased it, which was about one-half line in width. This may be said to be more objectionable than pivoting, inasmuch as the line of gold would be exposed to view; but this is compensated for by the greater permanency secured, the avoidance of trouble in removing the pivot tooth for cleansing (much neglected by all, and particularly by the young), and also avoids the danger of decay by the gold being solidly impacted, not only around and back of the piece of porcelain, but also against the margin of the remaining portion of the tooth. The diagrams here presented will more fully explain the case, which has thus far proven successful.

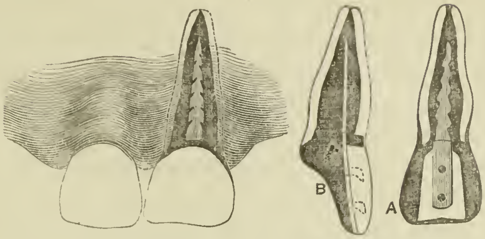


Labial surface. Side view. Front and side view of piece of porcelain.

The dark line A, and the dark part B, represent gold.

Several cases somewhat different from this have since presented, some of which are now undergoing treatment according to their requirements; others, having passed from their pathological condition, have been discharged as restored. All are roots,—roots of superior central and lateral incisors and bicuspids; upon two or three of the incisor roots pivot teeth have been worn, but in these cases caries had been gradually making inroads. These pivot teeth were inserted in the ordinary way with wood. Had they been inserted in the manner described by Dr. Essig, caries would have been averted, except to a slight extent, if the parts were neglected. In the insertion of pivot teeth by this mode, it is best to carry the filling around the gold tube from one-half to one line beyond the margin of the root, and so arrange it that the arch of the tooth will fit within the flexure of the filling, thereby obviating all danger of caries. Some of these roots are in the mouths of young ladies, and are the only teeth broken off, so that it would be wrong to extract them and subject the patient to the wearing of a plate with artificial teeth attached. Pivot teeth might be inserted in the manner described, with the filling extended beyond the margin of the root, as before practiced in a few similar cases the writer had in charge some time since; but one should make these operations, under such circumstances, as good and as permanent as possible.

These cases are managed somewhat like the one first mentioned. After the root is brought to its normal condition and prepared for the reception of its crown,—its golden crown with porcelain face,—then a plain plate tooth is selected, fitted to the part, and a heavy narrow gold backing attached, which extends into the root a sufficient distance to hold the tooth firmly when the gold is solidly impacted around the extension of the backing. The gold is not only filled in around the backing in such a manner as to retain it, but over the margin of the root and to the cutting edge of the tooth, so that the original form may be restored.



Labial surface.

Side view and palatine surface of the same tooth so divided as to show the porcelain and the gold backing in position.

The dark portion represents the gold.

In order to fill over the margin of the root under the porcelain tooth, the tooth is not placed within about a half line of the root, and this space is then filled with gold from the labial surface and against the anterior face of the gold backing. The backing which extends into the root should be made irregular along the edges, that it may be the better secured by the gold. It is best also to grind a groove along each approximal surface of the porcelain tooth, so that the gold may be impacted in it, and, upon the dovetail principle, assist the backing to secure the tooth in place. Were this not done, the tooth might be broken from the backing, as they sometimes are from artificial dentures upon metallic plates. These cases, when completed as here illustrated, are almost as permanent as a natural tooth that has been restored to its original contour where caries has been quite extensive.

# DENTAL ANOMALIES.

BY GEO. T. BARKER, D.D.S.,

PROFESSOR OF DENTAL PATHOLOGY AND THERAPEUTICS IN PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

(Continued from page 528.)

In the present communication it was my intention to direct notice to a singular case of absorption of the alveolar processes; but, as complications have arisen in the treatment, I have concluded to defer its publication until another occasion.

## Encephaloid of the Antrum.

In May last a gentleman sixty-five years of age presented for treatment. He stated that during his whole life he had, until the last six months, enjoyed perfect health. He had been endowed by nature with a magnificent physique, being six feet two inches in height, and his usual weight was about two hundred pounds. At this time he was greatly emaciated and feeble, and had lost his strength and appetite. His countenance was cadaverous, and there was considerable protrusion both of the left eyeball and over the region of the left malar bone, while two large, hard swellings (indurated glands) were observable at the angles of the inferior maxilla, the one on the left side being the size of a man's fist. He stated that the first trouble noticed was a swelling on the roof of the mouth, accompanied with increased salivary secretions. In a short time ulceration and sloughing of this mass occurred, but, with the exception of soreness of the parts, he had suffered no pain. On looking into the mouth, a large vascular tumor, pulpy and lobed, was seen depending from the roof of the mouth on the right of the median line; there being also several points of ulceration. On the left side, ulceration and sloughing had taken place to such an extent that the finger could be readily introduced into the antrum, where could be felt a large fungous mass, nearly filling that cavity; the soft palate was dragged downwards, as if by the tumor posteriorly, while near its upper margin was a large sloughing ulcer. The tumor could also be seen in the nasal cavities. Coating all the oral structures was a thick, tenacious secretion of the most offensive character; indeed, so sickening was the odor exhaled by the breath and secretions of the patient, that it was impossible to stay for any length of time with him in a close room. He stated that, fearing it was a cancer, he had never had it examined by a medical man,—of whom he seemed to stand in mortal dread,—but that, as he was now running down so rapidly, and had so much difficulty in eating and swallowing, he was obliged to have it examined. He further stated that he had early commenced the use of the *vaunted* fluid extract of cundurango, and had taken it faithfully, paying as high as ten dollars per bottle for it at first, and thought it had prevented him from having any pain, even if it had not arrested the growth of the tumor. Hemorrhage from the tumor usually took place every two or three days. In the tumor on the left side were located three teeth, they being all that were present in the upper jaw; and as they were loose, and in the way, I concluded to extract them, and did so with a delicate lance, and then ascertained that *entire* absorption and disintegration of the superior maxillary and malar bones had taken place.

*Diagnosis.*—An encephaloid cancer of the antrum, involving the nasal, maxillary, and malar bones and pharynx, which from its rapid growth indicated that the patient had but a short time to live; however, desiring to be still further satisfied, a microscopic examination of portions of the tumor was made by Profs. Harrison Allen, E. Wildman, and myself, and unmistakable evidence was given to us of cancerous disease, the caudate cells being numerous and well marked.

*Treatment.*—The object designed was to arrest as much as possible the growth of the tumor by local treatment, and correct the fetid condition of the secretions, and also prevent, if possible, their passage into the stomach, where they would in a short time so poison the gastric fluids that digestion and assimilation would be obstructed. The use of the fluid extract of cundurango was continued, as this was considered a good case to test its merits or its worthlessness. The most generous diet was recommended, with frequent use of stimulants, as brandy, milk-punch, and champagne, to keep up, if possible, the vital forces, which were being undermined by the insidious enemy. Tonic preparations of iron, quinine, and the simple bitters, were given to improve the appetite and invigorate digestion; but in a short time he wearied of them, and, as they did not appear to do much good, he refused to take them. The local treatment, which was the most effective, was rigidly adhered to until his death, which occurred in September. It consisted in swabbing out each day with cotton every diseased cavity, and removing from every possible surface the secretions which had accumulated and were present; then the parts were painted thoroughly with sulphurous acid, though after a few days' trial this was abandoned for the following:

℞.—Saturated Solution of Tannin, f℥iij;
Aromatic Sulph. Acid, f℥j. M.

The cavity in the left antrum was then packed full of cotton well saturated with a strong solution of carbolic acid, and allowed to remain until the following day. A mouth-wash and gargle was given for frequent use, consisting of the following ingredients:

℞.—Potassæ Chloratis, ʒj;
Potassæ Permanganatis, gr. xxv;
Tincturæ Krameriæ,
Glycerinæ,
Aquæ Coloniæ, āā f℥ss;
Aquæ Rosæ, f℥iv. M.

The object attained by this treatment was comparative cleanliness of the parts, the *entire* absence of offensive odors, either from the breath or secretions, and an astringent influence was exerted upon the tumor. As the fungous mass in the mouth impeded to such an extent both speech and mastication, I concluded to remove it, and for this purpose placed him under an anæsthetic and cut it away, afterwards painting the cut surfaces with deliquesced chloride of zinc. The cut surfaces readily cicatrized, and the tumor did not return to the same extent in that locality, though it grew with great rapidity in the pharynx and antrum, pressing upon the floor of the orbit and protruding the eyeballs, giving to the countenance a most ghastly expression. Death ensued from the pressure of the tumor upon the base of the brain.

*Remarks.*—In this case cundurango was given a fair trial by a full believer in its efficacy, and was found valueless.

The cancer seemed to be developed *sui generis*, as no ancestor on either the father's or mother's side had ever had the disease to his knowledge.

There was one marked peculiarity of the blood, and that was the preponderance of fibrin, as it would instantly clot on escaping from the vessels, and in cutting the tumor from his mouth I had great difficulty in keeping the clotted blood from getting into the larynx. This condition of blood may have been induced by the cundurango.

This case shows the value of local treatment in these cancerous affections, as his life was prolonged, and his own and his family's comfort assured and promoted.

A marked peculiarity of the case was the absence of pain in the growing tumor, as well as modification of nerve-power in both the cancer and surrounding parts, as chloride of zinc or pure sulphuric or carbolic acid could be applied without giving rise to any serious pain. The pulse during the whole time of treatment did not vary much from one hundred beats to the minute.

Death in these cases may result from hemorrhage from the external carotid, suffocation from impeded respiration, pressure on the brain by the tumor, or general exhaustion of the vital forces.

In these cases early removal of the tumor by the knife may prolong life (?); but with our present knowledge the disease must be considered incurable.

(To be continued.)

## GOLD vs. TIN FILLINGS.

BY W. E. DRISCOLL, BEDFORD, IND.

In the Dental Cosmos for June, 1872, on page 297, is a statement we expected to see called in question before this time; but as no one has to our knowledge done so, an effort is here made to correct what we believe to be a mistake in the writer, and which may mislead others.

The point in question is as follows: "For the molars and bicuspids, when the cavities are very large and the walls frail, requiring, if filled with gold, large and expensive operations of doubtful permanence, tin may well take the place of gold."

Now, we are a firm friend to tin as a filling where the teeth are strong enough to bear the necessary consolidation. But knowing that, if it is put in only as solidly as "very frail walls" will bear without bursting them, it will be too soft to answer the purposes of a filling but a very short time, we must object to this misuse of a good material if used in its proper place. And the only fit place for tin is in simple cavities, where by condensing on one surface it cannot bulge out at another as it will do in almost all compound cavities. The surrounding wall of dentine and enamel must be much stronger than is necessary to make a good filling with adhesive gold, for the reason that the gold can be made hard enough to support frail walls, while tin will burst them before it becomes enough condensed to make a good serviceable plug.

The foregoing is based on the principle that the best is not only the cheapest, but the most practicable. The idea of filling teeth with something that will serve as a temporary expedient or shift, when something we know will be cheaper and more satisfactory to ourselves and patients in the long run is at hand, will more certainly shake public confidence in us than any scale of fees the better practice can possibly necessitate. Let us use tin in strong back teeth where economy compels it, but not in teeth with "frail walls," when a few cents' worth of gold will do many times the good that tin can when we cannot safely bring it to its proper density.

# PROCEEDINGS OF DENTAL SOCIETIES.

## AMERICAN DENTAL ASSOCIATION.

### Third Day.—*Continued.*

(Continued from page 546.)

The subject of Operative Dentistry was taken up. Drs. Francis and Shepard presented two elaborate papers, the salient points in which were brought out in the discussion which followed.

Dr. Forbes wished to know how Dr. Shepard would fill a V-shaped cavity in a large, fleshy, short woman by standing, as he had directed, behind the patient.

Dr. Morgan, being as near as possible up to the case in question, was called for, and Dr. Shepard demonstrated upon him his mode of operating in the case of incisors.

Dr. Noble indorsed the paper of Dr. Shepard, especially upon the subject of mirrors, which he thought could be used with great advantage when one acquired facility in its manipulation.

Dr. Abbott wished to call attention to that portion of the paper on Operative Dentistry which enjoined the necessity of preserving the deciduous teeth. He had two little children, five and seven years of age, who clean their teeth regularly, and are always anxious to have them filled when they need it. He had filled some on the grinding and proximal surfaces. The materials generally used were tin and gutta-percha, which latter is excellent, except on molars. The same difficulty attends tin, also, on the grinding surface of the molars. It wears out frequently in three months, as it could not be condensed sufficiently in small children. He had also used the much-detested amalgam, and considered it the best material known for children's teeth. When the child is so small that gold cannot be packed, the cavity should be filled as well as possible with amalgam, and it will get hard and subserve all the purposes necessary. He had a young girl, fourteen or fifteen years of age, to come to him and want gold substituted for an amalgam filling put in years before, and hardly any decay was visible. He would like to know any material better, or even as good.

In regard to capping nerves, he said that it was a matter of great interest to all, and worth the experiment of trying. He applied creasote, as he had not abandoned it for carbolic acid. He brought it right on the pulp. He did not use cotton for applying it, but a mixture of spunk, gutta-percha, and beeswax, which can be put in the cavity and will be crowded in if the patient bites upon it. The teeth are thus relieved of pain. In some cases the pulp dies; in others it is helped. He then proceeded to capping with oxychloride of zinc. His failures had been one in seventeen for four or five years.

Dr. Dickerman wished to know what he meant by failure.

Dr. Abbott replied that he called it a failure when the pulp died. In one case he had made three amalgam fillings in a lady patient, and some time after she become *elevated* by marrying, and wished gold. He found that one of the pulps *bled* in the operation, which was conclusive evidence that it was alive. He found the deposit of dentine did not need any clipping. The preparation of oxychloride made by Dr. Smith he thought very fine. He then explained his manner of putting it on, which was: first, he had the cavity well cleaned; then wiped it over with a pellet of cotton dipped in creasote; then dipped out the oxide and dipped it in the chloride, and mixed it with cotton on a nerve instrument. This he carried through the cavity two or three times. Then he made the application of gutta-percha and wax, and sealed up the cavity. He never applied the rubber dam, except when filling. As to the mouth mirror, he thought it an excellent thing, though it required considerable time to get familiar with it. He had no doubt the mirror of Dr. Shepard was a good one. His style of filling front teeth he objected to. He did not approve of carrying the gold around and bringing it forward. He did not believe one out of ten could do it. He wanted to look right into it. People objected to the gold showing, but they would soon have it black if fillings were put in as Dr. Shepard directed, for the gold could not be packed from that position. He always filled from the front, unless he cut away and beveled from the inner side, which he did in a few cases. The idea of gold showing was nothing. It was better than discoloration. He always filled from the upper side, leaving as much of the palatal walls as possible.

Dr. Crouse said that he would not have supposed that the gentleman who had just spoken would have made one remark which he did, had he not just before proclaimed himself in favor of filling children's teeth with amalgam. He would have thought a man crazy who would cut away the tooth just to save work. He said that he did not operate as Dr. Shepard recommended. In dark days he used the mirror, but preferred looking directly in the mouth. As to not using the dam until the cavity is ready, he would say that four times out of five the cavity was not ready, and if the gentleman would use the mirror he would find it so. He considered tin fillings next to, if not equal to, gold. He was sorry to see any one advocating amalgam; he protested against it, and thought it was time to quit being lazy. He had used tin foil on the grinding surface of the molars, and had known it to last fourteen and fifteen years. He could take the same class of patients whom the gentleman described, put on the rubber dam and fill the cavity with gold, and fill it well. If he had a child, and a dentist filled its teeth with amalgam, he would prosecute him for malpractice. He knew of no excuse for using amalgam but laziness, for he could fill with gold the teeth of the most nervous child.

Dr. Abbott said, in reference to the use of the dam, he had filled teeth a good many years without it. For ten, twenty, and twenty-five years the teeth filled without the dam were as perfect as any now filled with its assistance. He wished to know if the cavities were not then well prepared. In advocating the use of amalgam, he had done it honestly. It was not the material used that caused failures generally, but it was the laziness of those who prepared the cavities and put in the fillings, whether amalgam or gold. There were many patients, too, who were in a hurry to have their teeth filled, and could not wait for gold; others, again, who could not pay for a gold filling. In these cases the dentist was compelled to use amalgam. And there was no mistake about it, amalgam would preserve teeth. He agreed with Dr. Crouse in believing that tin was next to gold—he was not sure but that it was better. He was speaking of those cases in which it was impossible to pack a filling, as for instance a very small child. In this the teachings of the schools would bear him out.

Dr. Wetherbee said that they should exercise the greatest possible care to subserve the best interests of the patient. He could not conceive how they could better operate when they find a small cavity, which is scarcely shown—not seen on the palatal or lingual surface—than first to apply the dam; second, wedge until it is open sufficiently to pass the finest instruments. If the cavity is low down, the wedge can be introduced near the gum. It should not be entered from the labial side. He would then pass in a burr, cut away the enamel on the under side, and proceed to excavate; a retaining pit is made and the filling commenced, the gold being kept in advance. The fullness then extends to the other tooth. It is burnished, a file passed in and a large part cut off, and the filling is finished off in the usual manner. He held that where the cavity is large, and the enamel is frail, they should cut away until they came to firm substance; they should not cut in a slanting direction, so as to destroy the integrity of the point of the tooth. It was better that the gold should show than that the tooth should be injured. It had been said that it is sometimes impossible to reach it with an instrument. He thought it was time for them to be done with such confession. They were supposed to know instruments that would reach even where the eye could not see. If a man was faithful he would have no difficulty. It can, it should, be done. Their self-respect demanded it.

Dr. Butler said that he indorsed the practice of filling children's teeth with tin. He did not believe they were justified in putting on the dam in the case of six-year molars, which are only crowns without solid roots. And the amount of force necessary for packing gold was more than the tooth ought to be subjected to. The difficulties in the way of filling were increased. The structure of the tooth was such that there was a liability of cutting down into the sulci, and also of powdering the edge. In nineteen cases out of twenty the tooth is not preserved. When the cavity is cut out, however, the tin should be introduced as quickly as possible. It should be put in rapidly and tight. It was difficult to decide when they had gotten a good strong margin. The operator ought to be the judge in all cases. Some patients will object to tin and *prefer* gold. He tells them that is exactly his preference, also, when he can judiciously insert it. He then impressed upon the association the importance of educating the people, *through their children*, to a proper care of the teeth. He did not go in so much for filling temporary teeth. He had rather cut away the decay as it occurred. He did not think amalgam did so much harm as some seemed to think. He was also surprised that some did not use the dam in all cases. He thought he got along a great deal faster by using it. By this means he got the case entirely under his control at once. To some the application of the dam was very disagreeable. While on this point he would beg them to *be humane*, and not get the patient irritable. He claimed that if they went about it properly they could always apply the dam.

Dr. Moore said that no one method of operating was adapted to all operators; each man must act as best suits his capacities. He only rose to present to the association a specimen, which he did as a warning to them. It was a tooth wrung from the mouth of a patient in regulating. It was a child thirteen years of age. The operation commenced by rubber bands which were worn two or three days, and the tooth becoming very sensitive the band was removed, and inflammation ensued, which lasted six weeks, going on to suppuration, the tooth becoming more and more sensitive. Two months afterwards the patient came to him with the tooth elongated, having cut through the integument. He found by examination that a rubber band had been left around the tooth, which had worked up and destroyed the pericementum. He removed the band and sent the child home. Two weeks afterwards he returned, and the tooth had pushed itself out so far as to require extraction. He was first led to suspect the cause of the trouble by the smell of rubber about the tooth.

### *Evening Session.*

The subject of Operative Dentistry was taken up to be discussed in speeches limited to ten minutes.

Dr. Atkinson said that upon this subject "every man had a psalm," and was more earnest in promulgating his theory than in doing real good. He thought the manner of operating had more to do with making good fillings than the materials used. He held that gold could be packed with as little pressure as tin. He had taken 120 foil and laid it layer after layer in a cavity with the infant lying on his lap.

In reference to anæsthetizing one-fourth of the tooth by cutting off one of the cornua, he would say nothing, as it was not best to say that the man was a fool who asserted it. He then went on to show how the action of the fluids in the mouth operated under the domain of cellosophy.

He held that if all the territory which was sick were cut out, whether in a child one or ten years of age, any indestructible agent would save the tooth. He thought that pushing gold to the lingual or labial side was all bosh. It should be applied in the line of the axis of the tooth. This was sure to be the most direct way. If they would get C. H. Mack's retaining screws and use them, they could fill any cavity.

Dr. Palmer spoke of a mirror with a neat copper wire for a handle which he recommended for its adaptability to the various positions of cavities.

Dr. Judd called the attention of the association to *green stain.* Schroeder claimed that it was a vegetable growth. He had used one ounce carbolic acid to one of glycerin with fine effect. Dr. Inge had also used this successfully on sensitive gums.

Dr. Thomas referred to wedging. He had learned that quick wedging was much preferable, and he thought slow wedging would soon be among the things that were. (Cries of "No, no!") He was surprised at the statements made by some in reference to applying the dam. He had found it just as useful when adjusted before the preparation of the cavity as when filling, as it kept the cavity free from moisture and greatly lessened pain. It also greatly facilitated the operation.

In filling the proximal surface of central incisors, he brought the instrument to bear on the gold at right angles. He prepared the cavity so as to get the pressure in the longitudinal line of the tooth.

Dr. Wetherbee then explained by diagrams on the blackboard his method of ingrafting artificial crowns on the roots of teeth. As the process is a long one, and cannot be condensed sufficiently for the space afforded by the journal, we refer our readers to the Transactions, where it will appear in full.

Dr. Truman referred again to the *green stain* which sometimes appeared on teeth. He attributed it to an acid condition of the mouth, and the development of fungi. He called attention to the growing tendency to the use of soft gold. He advocated the use of adhesive gold, and he found that those who used soft gold made it adhesive by passing it through the flame. He had seen it stated that more soft gold could be packed in a given space than adhesive. He had made extensive experiments, and had packed the adhesive so that the space was entirely filled. In reference to tin, he said it was frequently the only filling that could be used.

Dr. Abbott said that he had proved conclusively that with the same pressure exerted, and using the same points, more soft gold could be packed in a cavity than any other kind. Using the same pressure and point, from experimenting upon twenty cavities, he found that he could pack seventeen grains of soft gold where he could put fifteen and a half adhesive. The latter offered too much resistance in crinkling.

In deciduous teeth he did not cap where the pulp was exposed, but applied creasote and tannic acid, and then removed the pulp. In treating abscess, he first cleaned it; then washed it with warm water; then applied permanganate of potash, carbolic acid, and olive oil. This he placed on cotton over the pulp-canal, and then filled.

After a few general disconnected remarks, the subject of Operative Dentistry was passed, and the association proceeded to select the place for the next meeting. After balloting for some time, *Put-in Bay*, having received the highest number of votes, was announced as the place of meeting for August, 1873.

The association then proceeded to the election of officers, with the following result:

*President.*—P. G. C. Hunt, of Indianapolis.
1*st Vice-President.*—L. D. Shepard, of Boston.
2*d Vice-President.*—G. A. Mills, of Brooklyn.
*Corresponding Secretary.*—J. Taft, of Cincinnati.
*Recording Secretary.*—M. S. Dean, of Chicago.

*Treasurer.*—W. H. Goddard, of Louisville.

*Executive Committee.*—L. D. Shepard, H. A. Smith, S. H. McCall.

### FOURTH DAY.

The subject of Dental Education was taken up.

Dr. Shepard presented a paper in which his views of Dental Education were fully set forth. He laid before the association his plan of operations for the winter course of lectures, and concluded with an extempore expression of his views in regard to the needs of the profession. He thought that in addition to the winter lectures there should be a summer course for the practical branches. Several schools have adopted this plan, and found it eminently successful. The winter course was necessarily theoretical, and nearly all the time was taken up with dissections and the more theoretical branches of dentistry, and only certain hours were devoted to practice. The summer course should be confined to rudimentary teaching, and should be made to answer the purpose of office instruction, which has always been very defective, the time of the student being for the most part taken up with vulcanizing, he being very rarely admitted to the higher operations. By a summer course they could get better facilities for studying the practice of dentistry, and the student could make more rapid progress. During the past winter he had visited a Dental College where a student in attendance informed him that no dissections had been made during the term, the professor of anatomy making his demonstrations from a manikin only. He then referred to the system of buying and selling degrees which had obtained in some institutions. He had known M.D.'s, D.D.S.'s, LL.D.'s, and all the others, sold for no qualifications but money. One of these institutions had been broken up by the State of Pennsylvania, but their diplomas had flooded the country, and some of those holding degrees bought in this manner were occupying chairs in dental colleges. He thought that the rule in reference to conferring degrees was very loosely interpreted by most of the colleges. He recommended specified length of time and qualifications necessary for admission and graduation. He had heard it said that degrees had been conferred on men who had never entered the doors of the college. He did not think this should be allowed to go on. The past could not be altered: the old men had either got them or were past the age for receiving them; but with the young men coming on it was different. If they received degrees, it should be an indication that they had endeavored to obtain them by honest labor. He trusted that the association would show the colleges that they were not above its authority, and they could only be respected in so far as they acted in accordance with its requisitions.

Referring to what had already been done in relation to the establishment of a dental school in connection with Harvard University and the Missouri Medical College, he said that he understood there was a movement on foot for the creation of a dental department in the University of Pennsylvania. He hoped that those at present engaged in teaching dentistry in Philadelphia, in place of opposing such a step, would give it their aid.

On motion of Dr. Judd, the rules were suspended, in order to inaugurate the new president. Dr. P. G. C. Hunt, of Indianapolis, was then introduced to the association. He thanked the association for the honor done him, but refused to inflict upon them a speech, as there was so much important business yet to be transacted.

Dr. Shepard begged leave to set himself right upon a point which he had heard was raised in the association as to his connection with the Goodyear Patent Rubber Company. He disclaimed any connection with it whatever.

The subject of Dental Education was continued.

Dr. Atkinson referred to the fact that he had always been opposed to giving degrees, because the diploma was always a lie; that colleges can be above the profession is like saying that the books of the past could be above the workers of the present. He was opposed to filling the mind of the student with the empty verbiage of the past. He thought living investigators were the best teachers.

Dr. Truman said that members seemed very willing to criticise the colleges, but no one put his hands to work. The labors of professors were extremely onerous, and it came very hard to be criticised for what they could not help. The colleges must be self-sustaining, as they had no fund to go upon. Every dollar had to come out of their own pockets, and when they did as good work as they could he did not think they ought to be criticised so severely. Dr. Shepard, in his paper, had stated that there was one college which, he had been informed, had no dissections during one whole term. He did not think that was so. If they would sustain the colleges, and give them money to work on, there would not be so much opportunity for men to graduate without being properly qualified. If they had a government, like those of Europe, which would sustain its schools, they could have what they wanted, but until that time they would have to go on as they were now. As it was, he thought the dental profession fully up to the medical in this regard.

Dr. McQuillen said: The Chairman of the Committee on Dental Education having twice declined to name the institution alluded to in the report, in which there were no dissections, it was but proper to state that the remark did not apply to the Philadelphia Dental College, as subjects were dissected there both winter and summer by the professor of anatomy, and the most ample opportunities were afforded by this means, and the use of the manikin, for thorough demonstration.

He did not object to the criticism of dental colleges, for defects should be pointed out, and wrong-doing exposed, but this ought to be done in a fair, open manner, rather than in a covert way, or by innuendoes, leaving persons in doubt as to what institution was meant. A course such as that was calculated to awaken antagonisms and jealousies, where there should be harmonious co-operation in the advancement of the cause of education. He thought, as a rule, private preceptors were more to blame than the professors; and where one student goes to college and graduates, ten enter upon practice from the laboratory or office of a preceptor, after having served as errand-boys, workmen at the bench, or assistants at the chair in malleting for a year or two. How many practitioners inquire into the moral, mental, or physical qualifications of those applying to them to enter the profession, or afford the student (so called) the advantages of a well-selected library, direct their course of reading, and make periodical examinations to ascertain the progress made? As a general thing, when books are furnished, are not old and discarded text-books placed in the hands of the students to read at random, without guidance or encouragement? There are honorable exceptions to this: private preceptors who do their duty to the fullest extent, and who will not take students until they have obtained from them a positive promise to pursue a regular course of study, attend college and graduate before entering upon practice. Until that course became the rule rather than the exception, the general education of the profession could not be looked for. He did not stand forth as the champion of any one institution (or wish to secure success by endeavoring to underrate others), but for the interests of dental education at large. With respect to the allusion made in the report to the establishment of a dental department in the University of Pennsylvania, such a movement would meet with no opposition on his part, but, on the contrary, good will and sympathy, confident that those taking it in charge would have no other interests at heart than to advance the cause of education. When Harvard University decided to establish a dental school, the members of the faculty had found him ready and willing, on being consulted, to afford every information gained from a hard-earned experience of years to aid in organizing the institution.

Dr. Mills said that he could say, without egotism, that he had demonstrated his interest in this matter, and he knew something of opposition. The testimony of professors would bear him out on this point. He took the ground of Dr. Shepard in reference to Dental Education. He thought some men were too strenuous in their endeavors to find out who is a *doctor* and who is not. He agreed with Dr. McQuillen, especially on the point of properly qualifying students for entrance into college. He could criticise the manner in which some students were received into offices, and he was sorry to say that in his city he stood alone in his efforts to elevate the profession in this manner. He was frequently asked why he was so particular with his students, and was often told that there was not another man who received students as he did. He had known some students whose preceptors required them to enter the back door, and who were compelled, during odd times, to run into a barber-shop near by to make a few dimes, in order to eke out their living. There was too much of this sort of thing in the profession, though not, perhaps, generally so bad as the instances he had cited. He was sorry that the colleges admitted students who had not been under preceptors, and hoped that measures would be taken to raise the standard.

Dr. Jack said that he was in favor of instituting a regular system of investigation, in order to discover those colleges who were in the habit of graduating men without reference to their qualifications.

Dr. Dickerman said that, so far as his college was concerned, they had had dissections all the time. They had even been visited by the Society for the Prevention of Cruelty to Animals. He was in favor of having the dental colleges attached to the universities, but he did not want them hung to medical schools as a tail for them to wag.

Dr. Buckingham said that, as the executive officer of his institution, he denied that they had sent out any of whose qualifications they were not satisfied. He defied criticism on that point. The conditions of graduation were published, so that all could see them. He said, however, if Dr. Shepard were to come to him and ask for an examination for graduation he would not ask him a question. They did not examine those of whose qualifications they were already satisfied. They had conferred honorary degrees upon those who had been twenty years in the practice, and thought it right that they should do so. A great deal of fault was found with the manner of teaching. They had done the best they knew how to do. They did not, it was true, profess to teach spiritualism, or any other isms, but they endeavored to ground the students thoroughly in the elements.

Dr. Abbott said that he did not rise to find fault with the colleges. He had not the least doubt but that they were often deceived in reference to the qualifications of students. As to graduating men simply for the money paid for a diploma, that had been carried on to a very limited extent. Every college granted honorary degrees, and as far as his was concerned, they had not varied from the general custom in this regard. He was in favor of Dr. Shepard's idea of keeping the colleges open in the summer. He thought by this that they would get better practical instruction. They had an infirmary open through the summer, in which they always have from ten to twenty students at work. It was also a good thing for the poor of the city, who got the benefit of the operations. They received students at the institution with which he was connected, who had not had office practice, because they believed they could be better taught at the college. Every one knew the effect of being shown how to do anything. He had seen men who had been in the infirmary six months, who were better practitioners than those who had been in the office six years. Preceptors, as a general thing, do not tell their students how to do anything, and there is where the colleges succeed better than the offices in making good practitioners. Their college was not connected with any university. Though they had no dissecting-room connected with the college, there was one in reach, to which the students had access at all times. He did not say what he did by way of advertising, but simply to bring out the points under discussion. Their college, he said, would go as far as any of them in trying to elevate the standard of education, and would take any position which the association should dictate. He thought the *five years' practice* rule of Harvard a good one; though it was not, however, the time he had been learning, but what he knows, that determines the merit of the student. Some could learn more in six months than others in years.

Dr. Judd said that he was gratified with the discussion which had been going on, inasmuch as all parties seemed willing to look at the subject coolly, and to adopt whatever might be considered best. Dr. Atkinson had stated that the students, when taught, had to be unlearned. This he did not believe, and he insisted on the gentleman confining himself to that with which he is best acquainted. As far as he knew, the faculties were all honestly at work to make practical men. The students were not, as charged, required to memorize only, but they were taught to exercise their judgment. Dr. Truman had said that the dental profession stood on an equality with the medical. He thought, if this were true, that a profession of only fifty years' existence should be as well developed and organized as one more than three thousand years old. He admitted, however, that the class of dental students who came to the schools were as good as those attending the medical schools.

In regard to the status of schools, he would ask who was responsible? The onus of sustaining the schools rests upon the profession generally. A certain amount of responsibility rests upon every member. That there were differences in schools was evident. It would be strange if there were not. It was the duty of the profession to rally around them, and if they wanted to elevate the standard it was their duty to do it by encouraging the best only. Another condition opposed to progress was partisanship. This, he thought, should cease to influence the profession.

The subject of Dental Education was then passed.

The report of the committee on Dental Literature was called for.

Dr. Crouse stated that he had no report to make, but if he should do so it would be to this effect: He thought the number of dental journals should be lessened. First, because they did not contain enough original articles; and secondly, because there were not writers enough in the profession. They pay for all the journals, and then read in one articles quoted from the others. He would, therefore, advocate the concentration of their force upon one or two journals, so as to bring them up to the proper standard. He did not think they were as good for the past year as they had been before. He concluded by calling attention to the published proceedings of the Illinois Dental Association.

Dr. Buckingham said that the journals were doing all in their power to get articles. It was hard to get up journals without money. They had been seeking for communications, and begging the members of the profession to send them useful matter. The fault lay with the dentists, not with the journals. And again a significant fact was this, that the journals were all connected with some institution, and were intended to serve as its organ, and this in itself operated against their proper development.

Dr. McDonald thought that competition was the life of the journals, and that it was a bad policy to reduce the number.

Dr. Jack called the attention of the association to the book of Dr. Arthur just published.

The report of the committee on Etiology was read by Dr. Thomas, and the subject passed without discussion.

The report of the committee on Histology was presented by Dr. McQuillen. He dwelt particularly upon the *oral parasites*, demonstrating under the microscope their presence in masticated and insalivated food, which had been allowed to remain for some time between the teeth. After the doctor concluded his report, several gentlemen, who had examined his specimens, rendered their testimony to the satisfactory manner in which they had been exhibited.

Dr. Judd said that this was a very interesting study, and they had more to expect from it than almost anything else. He spoke of the leptothrix buccalis, which was found even in nearly all healthy mouths. It was probable that they were active in producing disease. Bacteria and spiralia were not so readily discovered. Five hundred diameters were sufficient for many of these parasites, but bacteria required one thousand. He called attention to the brachiones, which had a caudiform appendix, now well known to be a foot. This it would plant against a support, and then retract itself with the greatest possible velocity. Watching the motion of one of them, he had seen it tear its foot completely off.

Dr. Taft urged the importance of every dentist carrying on microscopical investigations. He recommended to those not able to purchase the larger microscopes a little one made by Stoddard, with a seven or eight inch tube. It had a fine adjustment. He had used his fifteenth and thirtieth with it. The price was only twelve dollars.

On motion the subject was suspended, to take up matters of general business.

On motion of Dr. Taft, a committee of three was appointed to prepare an article on anæsthesia for insertion in the Transactions as the sense of the association upon this subject.

The following, offered by Prof. Taft, was adopted:

*Whereas*, Dr. S. S. White, by his self-sacrificing and yet conservative action, has secured and preserved about all that seems to be left, in the way of evidence, against the validity of the "Cummings patent," that may be employed with any hope of success, by the dental profession in a contest with the Dental Vulcanite Company;

The indications are that had he been free to act there was a possibility, and perhaps a strong probability, that a very different result would have been obtained by the litigation; knowing as he did much of the duplicity and rascality of the plot, but yet not enough to warrant a public announcement;

For his efforts to save members of the profession from active co-operation in and money contribution to this swindle he has received censure and recrimination from those he endeavored to save from defeat and involvement; therefore,

*Resolved*, That to him are due the thanks of this association for the course he has pursued, and the efforts he has made in this cause, which have an embodiment in the *exposé* he has made of the whole scheme and transaction in the June number of the DENTAL COSMOS. For all this he is entitled to and receives our entire approbation, appreciation, and regard.

The following report was presented:

The committee to consider what action should be taken in reference to the Dental Vulcanite Company reports, that we recommend the appointment of a committee of five who shall co-operate with Dr. S. S. White, with full discretionary power to devise means to act in defense of the dental profession against the unjust demands of the aforesaid Company.

On motion of Dr. McQuillen, it was resolved that this association meet in Philadelphia at the usual period of the year in 1876, and that the Corresponding Secretary be instructed to open correspondence with foreign dental societies relative to sending delegates to that meeting.

### *Evening Session.*

The following report was presented:

Your committee appointed to draft a resolution expressive of the sense of this association upon the general use of anæsthetics in dental practice, would report that, in view of the fact that danger attaches to the administration of the ordinary anæsthetics, viz., chloroform and nitrous oxide, particularly if the agents are impure,—very few indeed being able to determine this fact, or to make the proper tests; and death having occurred in a sufficient number of cases from the exhibition of these agents to render their general use of doubtful propriety, and in a far greater number of cases more or less serious results having been experienced from their use; and, in addition to this, it is but too well known that these agents are made instrumental in the accomplishment of a large amount of unprofessional and mischievous practice by affording facility of doing that which could not be done without it: we would therefore most earnestly recommend to the dental profession the abandonment of general anæsthetics in ordinary practice, and to resort to them only under the most urgent circumstances, or still better, as the custom of some is, refuse to use them altogether.

J. TAFT.
G. B. McDONNELD.
W. A. MORRISON.

Dr. Taft addressed the association on the subject of local societies, calling upon the members to use all their influence to encourage them. Many were in a very prosperous condition, but looked to this association for countenance and support.

The following standing committees were announced for the ensuing year.

*Physiology.*—M. S. Dean, C. E. Francis, and R. G. Thomas.

*Pathology and Surgery.*—H. Judd, H. S. Chase, and J. S. Coleridge.

*Histology and Microscopy.*—T. B. Hitchcock, and C. E. Latimer.

*Chemistry.*—W. C. Adams, M. H Webb, and H. A. Smith.

*Therapeutics.*—H. L. Sage, J. McManus, and L. Jack.

*Operative Dentistry.*—L. D. Shepard, F. Abbott, and I. A. Salmon.

*Mechanical Dentistry.*—D. D. Smith, W. H. Eames, and W. L. Herriott.

*Dental Education.*—W. H. Morgan, E J. Waye, and S. H. McCall.

*Dental Literature.*—G. H. Cushing, E. A. Bogue, and C. N. Peirce.

*Etiology.*—W. W. Allport, P. G. C. Hunt, and E. B. Brown.

*Prize Essays.*—W. H. Goddard, J. F. Canine, and W. Dutch.

The report of the committee on Mechanical Dentistry was read by Dr. Allen; but there was no time left for discussion. The burden of the report was to enjoin the profession not to neglect one branch of the profession while they brought up the others.

The following amendments to the Constitution were submitted, and lie over for the ensuing year.

Amend Art. III., Sec. 3, by adding, "except as provided in Art. V., Sec. 1."

Amend Art. V., Sec. 1, by changing the word "*two*," the first word on the third line from the top of page 5, to "*three*," and the word "*three*," the last word on the same line and same page, to "*four*."

Amend Art. V., Sec. 1, by adding the following: "No person shall be eligible to office, or to serve on any standing committee, in this association, who has not been a permanent member for at least one year preceding his election or appointment, nor shall any except permanent members be allowed to vote for officers, or as to the appointment of committees, or as to the disposal of funds."

Amend Art. III., Sec. 4, by adding to it, after the last word "*body*," the following: "But no person having once been a permanent member of this association, and having been dropped from the roll for the nonpayment of dues, shall afterwards be received as a delegate until he shall have paid to the treasurer the full amount which was due from him up to the time he was so dropped."

Amend Art. VI., Sec. 1, by adding the following: "The following standing committees of three shall be appointed in the following manner, for the purpose of preparing, arranging and expediting business in their several departments for the annual meetings."

"The chairman of each committee shall be appointed for the term of three years, and shall be elected with especial reference to his qualifications and willingness to serve upon such committee. The other two members shall each be elected for the term of one year; also with reference to their fitness for the particular work required of them. The manner of their election shall be as follows, viz.: upon the report of the executive committee of names for the standing committees, the question shall be, Will the association now confirm the nominations of the executive committee? Any member may call for a separation of the question by leaving out a part of the nominations while the other is confirmed, and when such division is made the report so far as not adopted shall be recommitted to the executive committee with instructions. Nominations shall be made only through the committee, as they are supposed to be better qualified to judge of the fitness of members for various works, as well as to have acquainted themselves, in some measure, with the facts as to their willingness or otherwise to serve the association in such capacities."

Amend Art. VI., Sec. 1, by adding the following: "A committee on Etiology."

Amend Art. IX. by substituting: "Alterations and amendments may be made in the foregoing articles or rules of order at any annual meeting by the consent of all the members present; otherwise notification in writing shall be made of any such proposed alteration or amendment, and laid over for one year for final action, when they can only be adopted by an affirmation of two-thirds of the members present."

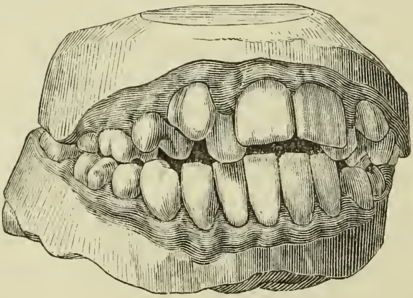
The association then adjourned, to meet at Put-in Bay, the first Tuesday in August, 1873.

## ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

The Odontographic Society of Pennsylvania held a meeting at the Philadelphia Dental College, Wednesday evening, Sept. 4th, 1872.

Dr. H. Gilmour presented the articulated models of a case of irregularity, of which the accompanying cut is a representation. He said that they were the models of the teeth of a young lady, fourteen years of age, of a very nervous temperament, who had been placed under his care by her father, with the statement that she was to leave in the course of a week or two for boarding-school.

As will be seen by the cast, the superior laterals stood within the arch about half covered by the central incisors, while the canines were so close to the centrals as to leave such a limited space as to make it apparently impossible to draw the laterals into their proper position without sacrificing the bicuspids; at the same time the central incisors raked outwards, so as to make the lip unduly prominent. The lower front teeth raked inward so much that they did not approximate the superior teeth when the mouth was closed. The right upper second temporary molar was still in place, and the pulp had been removed from the first lower molar. He had not yet decided upon what treatment to adopt in the management of this case. His object in bringing the case before the society was with the view of obtaining the opinion of the gentlemen present as to what course to pursue.



Dr. McQuillen said it was difficult to form an opinion as to what plan of treatment would be the best to adopt in treating a case of irregularity of the teeth, when the conclusion had to be arrived at merely from an examination of plaster models. An inspection of the mouth and a view of the features of the patient, in person or by means of a photograph, was a necessary aid in forming a correct diagnosis.

He had frequently been consulted by fellow-practitioners residing at a distance, who had sent plaster models by mail, but none of them had ever thought of forwarding photographs of patients. The age of the patient, the laxity or density of the tissues, the constitutional peculiarities, were points on which one should be informed, and this could be best acquired by a personal interview. With these drawbacks, he would suggest the introduction of a piece of hickory wood between the superior laterals to act as a wedge and force them past the central incisors, and then would use the silver bar and rubber ligatures, as proposed by him in 1859, in the DENTAL COSMOS, vol. i. page 183, the ligatures being attached to the laterals, so as to draw them into their proper position in the arch. During all this time an inclined plane made of hard rubber and fitted to the lower teeth would materially aid in forcing the laterals in their position.

Dr. Long would pursue the same treatment as that suggested by the preceding speaker. If the cuts in the bar on the side towards the cuspids were extended farther back, the ligatures would press the cuspids back at the same time the laterals were being drawn forward.

Dr. Head. When it was necessary to use ligatures, he had found a plate, with hooks for securing the ligatures, to produce better results than when attached to a bar, which frequently gives rise to serious trouble by slipping up on the gum.

Dr. Stellwagen. It is essential to success that the patient should be willing to undergo the suffering necessary to accomplish the object desired, namely, a regularly arranged set of teeth; and it will ever be premature, if we commence before such consent has been obtained. Hence the patient should have arrived at an age capable of reasoning.

A second step in this by no means inviting branch of practice, is to study the patient's features, both full face and profile, noting any defects that may be apparent. Many times protracted suffering, and even serious injury, may be avoided by remembering that it is unnecessary to expand the alveolar arch simply to get the whole of the teeth in position, where it is large enough to harmonize with the face and does not impair the voice or mastication. The specialist, who unnecessarily prolongs the treatment to save useless teeth at the risk of causing more serious disturbance, as dyspepsia, nervous debility, etc., is as fit a subject for ridicule as the ignorant physician who overloads the digestive organs with drugs for neuralgia caused by an exposed tooth-pulp.

While it is questionable or even bad practice to preserve useless teeth, always remember that it is rare that any of the six anterior teeth can be removed without serious deformity resulting from the loss. The first or second bicuspids, from their liability to disease, their secondary importance in speech, expression, or mastication, and finally the spaces left after their extraction, being so easily filled and so frequently sufficient for the purposes of the orthodontist, are all sufficient arguments for the sacrifice of these organs in preference to others.

The occlusion of the teeth, the manner in which they tend to interfere with the movement of each other, also the proposed occlusion to be gained after the treatment has been completed, should be taken into account. It is true that capping will often aid in preventing the delay from mal-occlusion, yet it may sometimes be avoided, without this additional trouble and annoyance. Caps should, if possible, be arranged to avoid bringing all the pressure upon one or two teeth, and, if this cannot be done, they should be frequently changed to other teeth to avoid periodontitis. They may be made effectually and quickly from metal plates, as recommended by Prof. McQuillen, or gutta-percha, as taught by Prof. Flagg.

From what information is given of this case, it would seem well to extract the first superior bicuspids and left inferior first molar, allowing the patient then to go to school, and upon her return to the city, during the vacation, decide if any further interference will be desirable.

Dr. Wm. H. Trueman had a case under treatment at the present time in which he had extracted the first lower molars to make room for the front teeth, but the molars had moved forward so rapidly that they had almost filled the space without allowing any separation between the front teeth.

Prof. Stellwagen. The occlusion of the teeth has more to do with their moving than any power that could be produced either with a plate or ligatures.

Dr. Breen had had a case similar to the one under consideration. He used whalebone in place of wood, as suggested by Prof. McQuillen, and then used an inclined plane upon the laterals until they were forced between the cuspids and centrals; then removed the plate, and allowed them to fall into the arch of their own accord, which they did very satisfactorily.

Dr. McQuillen. One of the advantages of the bar proposed by me is that the patient can be instructed to take it off and cleanse the teeth, renew the ligatures and replace the bar. By this plan there would be fewer visits at the office required of the patient, and a young person living at a distance, or going to a boarding-school or college, could continue the treatment to a successful result. He had recently placed one on a young man going to college, who he expected would not return to the city until the Christmas holidays, long before which he hoped the teeth would be in proper position. In some cases he would favor the extraction of the bicuspids, but it would be the exception to the rule.

Dr. Tees would use a gold wire in place of the bar; had always procured satisfactory results with the inclined plane where it could be used.

Dr. Head extended the caps over all of the teeth but those he wished to move, and then the patients would have comparatively little trouble in masticating their food.

Dr. Stellwagen. Where the caps only cover one tooth, he had found it necessary to remove them, as it caused periodontitis; he used caps covering several teeth. Practitioners of dentistry and all specialists are too apt to overlook the health of the patient, which frequently becomes affected by long-continued treatment for the correction of irregularity.

Dr. Breen had a case under treatment in which in moving an upper central incisor he had employed the inclined plane; the tooth was in nearly the position required; he had found on removing the fixture that there was quite a space between the inferior and superior incisors when the jaws were closed. He wished to know whether this was due to the body of the lower jaw being changed by wearing the fixture.

Dr. McQuillen said, in response to this query, that he did not think that any change had taken place in the body of the lower jaw, but the presence of the inclined plane on the front teeth had prevented the occlusion of the bicuspids and molars, and they, having been relieved of their natural antagonism, had become elongated. A few days' or a week's use in mastication would soon force them back into their places.

## MAINE STATE DENTAL SOCIETY.

The seventh annual meeting of the Maine Dental Society was held in Augusta, August 20th, 1872. Dr. Henry Leavitt, Vice-President, in the chair.

Officers for the ensuing year were chosen as follows:

*President.*—Henry Leavitt, of Skowhegan.

*Vice-President.*—E. J. Roberts, Augusta.

*Secretary.*—Charles E. Hussey, Biddeford.

*Treasurer.*—W. R. Johnson, Portland.

*Executive Committee.*—Drs. E. Bacon, Thomas Haley, Thomas Fillebrown, H. W. Ladd, and J. H. Lombard.

Drs. J. W. Curtis, J. N. Merrill, and G. P. Lombard were elected active members.

Dr. J. W. Curtis, of Brunswick, read an essay on the "Pathology of the Teeth."

Dr. Arthur's system of preventing decay was discussed.

Dr. Curtis related a case of salivation from an amalgam filling.

Dr. Salmon illustrated the use of gold screws for retaining gold fillings.

Clinics were held at the office of Dr. T. Fillebrown.

Adjourned.

Charles E. Hussey, D.M.D., *Secretary.*

# EDITORIAL.

## THE FUTURE OF DENTISTRY.

THE progress of medical science was never so rapid as at the present time. Investigation was never before so vigorously prosecuted,—never assisted, as now, by the appliances of research. Observation was never so acute, experimentation so thorough, reflection so profound, or records so complete. In every department of modern medicine new facts are developing daily, new theories being presented, and new modes of treatment suggested. The microscope and thermometer, the ophthalmoscope, laryngoscope, etc. are contributing constantly and largely to the sum of knowledge, and the mechanical adjuncts for operation or repair are supplied as intelligently and quickly as their need is recognized.

The literature of a specialty is to-day more abundant than was that of the whole round of medicine a few years ago; and to be abreast of the times requires a larger outlay for the apparatus of a specialist than would have purchased all the appliances known to medical science two decades since.

Thus treatises on diseases of the throat, on oral or ophthalmic surgery, on diseases of the skin, of the rectum, of the bladder, to say nothing of the physiology and pathology of the more important organs,—brain, heart, lungs, stomach, and uterus,—these, we say, grow into ponderous octavos double the size of that which but lately was considered sufficient for the exhaustive discussion of all the ills to which flesh is heir; while similar volumes, on scores of special topics, aspire only to the title of the "elements" or "rudiments" of the subjects discoursed upon. In a word, the field is becoming so vast that no man may hope to till more than a fractional part. Life is too short even for the preparation, much less for the practice, in its fulness, of more than this. "To understand nature is the prerogative of the human mind; yet this work is so vast and difficult, and its results so precious to humanity, that it is given to no man or to no age fully to penetrate her mysteries. No subject—not the minutest thing—can be so exhausted that further thought and insight of genius may not discover still deeper meanings and more subtle relations. And thus the mighty labor becomes progressive; each generation receives its inheritance of knowledge, makes its own additions, and bequeaths the whole to its successor." It follows, therefore, that the highest results in accuracy of diagnosis and prognosis, in perception of the therapeutic, surgical, or mechanical indications, or facility in manipulation, can be hoped for only in proportion as the sphere of research, observation, reflection, and comparison is limited.

Here, then, is the explanation, justification, and necessity of specialties. It is apparent that undivided attention to particular organs must result in a keener appreciation of their histology, physiology, and pathology, while a like concentration of thought on their therapeutic or surgical treatment must eventuate, other things being equal, in a higher skill.

But while it is manifest that no man may hope to acquire an intimate familiarity with every section of this extended territory, it is none the less evident that no district thereof can be fully appreciated without a comprehensive view of the entire field. No man can practice intelligently any specialty of medicine except on the basis of an appreciation of general principles,—a clear insight into the morbid changes induced by disturbance of physiological processes. The systemic relations to local lesions must be comprehended, if success in their treatment is to be expected.

The influences of lesions of circulation, of respiration, of innervation, of nutrition,—all disturbances of systemic harmony,—must be recognized in their relations to local lesions; and the influences of age, sex, temperament, physical surroundings, occupations, habits, etc., must be taken into the account. The ophthalmic surgeon recognizes other than local causes for various diseases of the eye; the aurist is frequently consulted when no local explanation is afforded of the disability from which relief is sought; the diseases of the skin are chiefly of systemic import. In a word, by far the greater number of local lesions are the result of influences acting constitutionally through disturbance of physiological functions, while diseases apparently local lapse not unfrequently into systemic derangements, the local disease being either the first expression of a systemic vice, or profound systemic impression being the result of neglected or improperly treated local aberration. Thus it is apparent that a knowledge of the whole range of disease must be had, that one be not misled into treating a condition without consideration of its relations and bearings.

The proclivities of different men, the peculiarities of their education or surroundings, the temptations of ambition, or the limitations of opportunity, lead one to the practice of general medicine, another to obstetrics, another to surgery, or to some lesser specialty of surgery or medicine.

The result of this concentration of thought and effort is shown in the literature of specialties, which becomes compact, comprehensive, and exhaustive.

The community is learning to appreciate the advantages of special training, and naturally seeks advice from those who have devoted themselves to the study of the particular derangements from which it is suffering; and, if we read aright the signs of the times, it is also being rapidly educated into an appreciation of the necessity of a scientific basis for medical practice of whatever character. It will demand ere long that he who administers electricity or Turkish baths, or aspires in any way to the title or the avocation of a doctor, shall base his claims on a broad and comprehensive medical culture,—not only the minute and accurate observation of one organ or one class of diseases, but the knowledge and application of principles.

To apply these facts to the practice of dentistry compels the conclusion that the choice must be made by its practitioners whether they will occupy the position of mechanics or artisans, or qualify themselves to be medical specialists. To refuse to see that great changes are at hand, as concerns the standing and practice of the dental profession, is simply to shut one's eyes. Of no one thing are we more fully assured than that the dentistry of to-day must either advance or give place; to attempt to confine it to its present limits is to seek to control that progress which is itself evolution.

An interest is being exhibited by the medical profession in the subject of oral surgery, which will sooner or later lead medical students and practitioners of surgical proclivities to direct their attention to a specialty which, including naturally the study of the diseases of the teeth, offers them not only the attraction of a dignified surgical specialty, but as well a source of revenue which they will not be likely to refuse. The medical profession is full of young men of surgical inclinations, who find themselves compelled to desert their cherished plans because of the long and weary waiting required to grow into a remunerative practice in general surgery. To such, a specialty like oral surgery offers opportunities of practice in the direction of their choice, which lead from minor to complex operations, as confidence is established and reputation secured, until, commanding a practice which will allow of choice, they can pass the class of cases with which they began to others who are seeking to tread in their footsteps.

The establishment of a lectureship on oral surgery in the University of Pennsylvania, the recognition by Harvard University of the propriety of associating teachers of dentistry with its faculties, the quick sale of the entire edition of a volume devoted to the consideration of diseases of the teeth and parts topographically associated,—these and other facts of like import are the signs of the times.

Dr. Garretson's new work, "A System of Oral Surgery," furnishes the missing link needed to unite dentistry with medicine and surgery, supplying a deficiency on either side, and creating, if we mistake not, a new specialty,—that of ORAL SURGERY,—in which, at a time not remote, the dentistry of to-day will be merged and lost.

Let those now entering the ranks of dentistry take warning. No mechanical skill, however scientific; no artistic culture, however perfect, will in the near future rank for anything more than their stamp. Commendable, honorable, remunerative they may be, but they will not long command recognition as entitling their possessor to a place in the ranks of a learned profession.

Let not those who entered the profession in its infancy, and who have helped in its honorable exaltation, repine because its rapid advancement will leave them in the rear, but rather rejoice that the calling to which they gave their best endeavors "when days were dark and friends were few" is being lifted to a higher plane and a more secure position as a recognized specialty in the great circle of medical science.

# BIBLIOGRAPHICAL.

THE PATHOLOGY OF THE TEETH, WITH SPECIAL REFERENCE TO THEIR ANATOMY AND PHYSIOLOGY. By CARL WEDL, M.D., Professor of Histology in the University of Vienna, etc. Translated from the German by W. E. BOARDMAN, M.D. With Notes by T. B. HITCHCOCK, M.D., D.M D., Professor of Dental Pathology and Therapeutics in Harvard University, etc. With one hundred and five illustrations. Philadelphia: Lindsay & Blakiston, 1872.

In that transition stage which all observation exhibits to be the condition of the dental profession at the present time, every work is to be welcomed which tends to aid in the completion of the change. Whoever contributes a new fact or a new idea, or digests and assimilates familiar facts so that they become available for theory or practice, should receive, as he merits, the gratitude of the profession.

We have in the volume before us evidence of laborious research and medical culture of no ordinary character. The scope of the work, as shown in the table of contents, is complete and comprehensive, covering the entire field of the anatomy, physiology, and pathology of the teeth and contiguous structures.

The volume may be said to be the text or supplement of a work published at Leipsic some three or four years since, by Profs. Wedl and Heider, entitled "Atlas to the Pathology of the Teeth;" and although the present volume forms a complete work by itself, yet reference is continually made to the Atlas, and an understanding of the book will be materially assisted by studying it in connection with the former work.

The volume is divided into two parts, the first part being an anatomico-physiological consideration of the subject. The second part, dividing the morbid processes into seven groups or families, considers the diseases of the different structures, in connection with each group, in the following order: 1st. Irregularities in the formation of teeth. 2d. Inflammations. 3d. Atrophies. 4th. Hypertrophies. 5th. New formations. 6th. Anomalies of the secretions. 7th. Neuroses. Under these general titles, with eighty-seven sub-headings, the work is thoroughly and systematically outlined.

The most superficial reader of the volume cannot fail to be impressed by the advantage which one has who, like the author, knows a subject in its associations, over one who has studied only a part—a specialty. The book commends itself to us as suggestive of that education which every professional man should aspire to who has respect for the meaning of his doctorate. That Prof. Wedl is a scholar the volume in review sufficiently demonstrates, and affords also abounding evidences of diligent research and labor in the special direction indicated by its title. The first division of the book, and of the second division especially the chapter on "Irregularities," give proof of attentive and discriminating observation—calling attention to some points which we have not elsewhere seen discussed.

Knowledge, however, is valuable in proportion to its applicability, and teaching is valuable only in proportion as it confers knowledge available for the purpose designed. We regret to say that, judged by this standard, a large portion of this volume will, we think, prove unsatisfactory to the student and to all except the most advanced among practitioners—and in many respects to them also.

The pathology of histology cannot, in the nature of things, be discussed without the employment of language peculiar to the subject; but Prof. Wedl has, we think, in an exaggerated degree, the peculiar faculty, not uncommon in German authors, of mystifying himself as well as his reader, and darkening counsel by an excessive effort to make plainer that which is already plain. Read this book as attentively as one may, the reader feels that the *practical*, though always just about to be evolved, yet always just eludes his grasp. Perhaps we cannot better describe its quality than by the term "hazy." One feels a constantly recurring tendency while reading to stop and ask himself what he has been reading about. In the infinitely little, and, for the present at least, practically unimportant details, the author revels in a multiplication of adjectives whose number only serves to bewilder; while just in proportion as the discussion approaches the sphere of the practical and useful, the descriptions grow meagre, and the deductions applicable in practice are left to the reader.

The chapter upon neuroses is perhaps the least open to criticism of any in the volume, and, though containing nothing new to the American practitioner, is suggestive, and therefore valuable. To any reflecting student or practitioner, it will be worth the price of the book.

To the translator, Dr. Boardman, great credit is due; a more faithful translation of a German medical work is not often found.

Of Prof. Hitchcock's annotations more might be said if there were more of them. Of the publishers' work more need not be said than that the volume is in keeping with their usual style—good.

# OBITUARY.

Died, at West Chester, Pennsylvania, September 8th, 1872, J. F. B. Flagg, M.D., D.D.S.

Dr. Flagg was born in Boston, Mass., May 12th, 1804. At a suitable age he enlisted as a student of dentistry under the tutorship of his brother, Dr. J. F. Flagg, of Boston, and, becoming qualified, entered upon the practice of his chosen profession at Providence, R. I., in 1826.

During the following year he married a daughter of the Hon. Richard Jackson, a prominent citizen of the latter place, and, in conjunction with the duties of practice, found time to manifest and assert his approval of the movement for the extension of the right of suffrage, and, as an advocate of this effort, was elected a member of the Assembly, under Governor Dorr.

He removed to Philadelphia in 1842, and, being almost a total stranger, had serious obstacles to encounter in establishing himself; but, with the indomitable energy so characteristically his, he acquired the status of a recognized and eminent practitioner of his specialty.

He was particularly prominent as having announced to the dental and medical world that the so-called "Letheon" of Mr. Morton, of Boston, was simply washed sulphuric ether, thus *securing* to them an *unpatentable* material. He continued much interested in this anæsthetic, enjoying a large and lucrative practice in its administration, and in 1851 published a work on "Ether and Chloroform," which remains standard authority even to this present writing.

He was elected to the chair of Anatomy and Physiology in the Philadelphia College of Dentistry in 1855, and maintained the position as a peculiarly acceptable lecturer until 1858; he, however, never relaxed his interest in the cause of dental education, and at considerable pecuniary loss operated an infirmary for the occupation and instruction of students during the summer season; but the plan was relinquished after having failed to command the encouragement to which its merit entitled it, and which would at the *present time* most unquestionably be accorded a similar institution.

In consequence of failing sight and health, he retired from practice about ten years since, residing, with his second wife, in Burlington, New Jersey, and West Chester, Pennsylvania.

As a scientific man, he was remarkably well informed; as a dentist, he was very skillful; while for his personal friends he possessed the power of commanding alike respect for his mental attainments and affection for his social qualities.

He will be gratefully remembered by the many who have reaped the benefits of his professional skill and kindness, and tenderly regretted by his pupils, who will ever recall the happy hours spent in his improving and genial company.

# PERISCOPE.

On Inherited Syphilis.—While I have this patient in the room, I desire to direct your attention to another symptom of inherited syphilis. It is one which has attracted a good deal of attention recently. If you inspect this boy's mouth, you find that the incisor teeth are imperfectly developed, and that their free extremities are notched, and smaller than the bases of the teeth. To Mr. Hutchinson is due the credit of pointing out the significance of this physical sign. Now, these are not typical examples of Hutchinson's teeth, which, when perfect, are smaller, more notched, and have more contracted crowns than these have. You see, too, that the adjoining teeth of the upper, and the middle ones of the lower jaw, present the same peculiarities in a slight degree; but you must remember that it is not among these that you are to seek for these alterations. Mr. Hutchinson has insisted upon the fact that the permanent central incisors of the upper jaw are the ones which are valuable for diagnosis, and you must further remember that he attaches no importance whatever to the various other irregularities in the position and shape of the teeth. which so often occur. The peculiarities to which I have alluded are important, viz.: First, instead of the free edge of the crown of the tooth being the broader, as it is normally, the widest portion is next the gum. Second, the free margin is notched or crescentic. These teeth are rarely present in more than one of the same family of children, and this is usually the one first born with congenital syphilis.

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From what I show you this morning, you see that there is no uniformity in the presence of Hutchinson's teeth; and, to state briefly my own convictions in regard to the matter, I would say that, so far as my present experience shows, these dental changes, when they are present, are absolutely pathognomonic of congenital syphilis, but that they are often absent It is another element which will aid you in diagnosis, but which, like all other prominent symptoms of disease, is sometimes unavailable, because it is not present. This last fact is easily accounted for if Mr. Hutchinson's view of its causation is correct. He believes it to be due to inflammation of the alveolar process of the jaw, and, just as it is with iritis, keratitis, and various other conditions, the disease may run its course without the inflammation being developed.—*Clinical Lecture by John S. Parry, M.D., in Phil. Med. Times.*

Mechanical Treatment in a Case of Syphilitic Absorption of Palate, etc.—A gentleman presented, about two months ago, who had suffered frightfully from the effects of syphilis, the whole of the soft palate, tonsils, and uvula being entirely destroyed, together with nasal bones and the center of the hard palate, only a narrow ridge of bone remaining at the posterior part of the palate. On looking into the mouth, it appeared like a large cavern, and the effect was that the patient could neither swallow liquid without a quantity of it coming through the nostrils, nor could he utter a distinct word of any sort.

The patient at the time was wearing a gold plate, with three artificial bicuspids attached, the plate simply covering the hole in the hard palate.

After mature consideration, it was decided to substitute a vulcanite case, consisting of ordinary vulcanite, to supply the defect in the hard palate, and add a velum of soft rubber to construct the soft palate.

Considerable difficulty occurred in obtaining an impression in consequence of the patient upheaving so violently; but having procured a tray specially adapted for the purpose, an excellent impression was got.

In constructing the hard rubber palate, a strong elastic gold wire was inserted all round the edge of the case, and was left half an inch beyond the end of the hard rubber on each side, and curved round, which prevented the velum from drooping, but at the same time did not interfere with its free play.

The case has proved to be a complete success, the patient at first complaining of the velum extending so far into the throat, and touching the muscles; but the feeling has now entirely worn off, and the patient now articulates quite distinctly, and deglutition is almost perfect. The case holds up by suction, as a considerable quantity of rubber extends through the cavity in the hard palate.—*Frank Robinson, in Brit. Jour. of Dental Science.*

PAROTID TUMOR; OPERATION FOR REMOVAL.—Henry H., aged forty-five, a tailor, residing in Essex, was admitted into the hospital in February of this year. He stated that he had always enjoyed good general health. About six years ago a lump about the size of a pea formed over the left parotid region. It was movable over the parts beneath to a slight extent, and the skin was movable over it. It gave him no pain, and grew slowly. About twelve months after it first appeared, when it had reached about the size of a walnut, he went under the care of a quack, who applied to it a black burning liquid, which did not fume, but which, if applied to a piece of linen, turned it black and burned a hole in it. (This was probably sulphuric acid.) This made a sore, from which the quack "pulled the tumor out." Into the hole left he used occasionally to pour some of the burning liquid. Even while under this treatment the tumor continued to grow, and the patient, getting tired of it, left off seeing the quack. The sore healed, and from that time to this he has had no treatment of any kind. The tumor has been steadily growing. It has given him no pain. He has not suffered in general health, or lost flesh. He thinks it has been growing more rapidly lately. Being desirous of succeeding his father in the office of parish clerk, and the parishioners objecting to his appearance, he has come in to have the growth removed.

*Present state.*—The patient is a thin but healthy-looking man. In the left parotid region is a large tumor of irregular shape, about the size of a fist. It reaches from the ear to the angle of the jaw. The tragus is slightly displaced by the growth, and the lobule is situated over its upper part. The angle of the jaw can be clearly felt, but the ramus can only be reached by deep and forcible pressure. It is irregular in shape, consisting of three chief lobes, the largest being lowest down, and the smallest on the face. These lobes are again subdivided into lobules, especially at the upper and anterior parts. The lowest lobe is smoother than the others. In the center is a deep pit, with the cicatrix of the former operation. The tumor measures from the ear towards the angle of the jaw six inches, and in a line transverse to this five inches. The skin is tightly stretched over the growth, especially at the lower part; but it is nowhere adherent except at the cicatrix in the center. The skin over the lower part is of a pink color, and in it are innumerable small veins ramifying. The tumor varies much in consistence. At its upper part it is tolerably firm, and has on its surface some small nodules, about as big as large peas, which are of cartilaginous hardness. At its lower part it is so soft and elastic as almost to fluctuate. The whole mass is freely movable to the extent of nearly one inch over the deep parts. It gives him no pain when manipulated. The functions of the facial nerve are not interfered with. It does not interfere with mastication. He has no dryness of the mouth during mastication.

February 28th.—Mr. Erichsen removed the tumor. One incision was made downwards from the malar bone over the anterior part of the tumor; from this another was carried backwards towards the ear; the flaps were dissected up, and the tumor easily enucleated. It was necessary to remove a small piece of skin which had become adherent to the tumor. There was little bleeding.

29th.—The end of the upper flap of skin, which was stitched in the center, is darkish in color. The other parts of both flaps are rather red and swollen. There is slight bagging under the lower flap, probably from slight oozing of blood. Spoon diet.

March 1st.—Temperature at 10.30 A.M., 102·8°. The central part of the skin flaps is becoming gangrenous. The sutures attaching it to the other parts have been removed.

9th.—Last ligature came away this morning. There is a little paralysis of the left side of his face; his upper lip drops a little on that side, and on attempting to shut his left eye the lids do not come together, but he turns up his eyeball.

30th.—Patient discharged with very slight wound, and swelling almost disappeared.

The tumor, when removed, was about as big as a fist. It was lobulated on the surface, and of varying consistence. Some parts were soft and gelatinous; others of the consistence of cartilage. It was of a delicate pinkish color, with white streaks running through it. On scraping, it yielded a sort of mucous fluid, but this did not seem to be coagulated by acetic acid. On section the tumor was found by Mr. Marcus Beck to be an ordinary parotid tumor. In parts its structure resembled myxoma, having striated cells in a homogeneous matrix. In other parts cartilage cells were found, and again, in others, patches of rounded cells in an oval space, resembling gland tissue. It was moderately vascular.—*University College Hospital Report, in Med. Times and Gazette.*

ON CANCER OF THE SUBLINGUAL GLANDS.—"I am about to direct your attention to a frequent and grave affection: epithelioma, or cancer of the sublingual glands. The subjects of this affection generally come to us with ulcerations which have been cauterized and tormented for several months, and in such a manner as to render surgical intervention difficult. Authors scarcely allude to cancer of the sublingual glands. I have seen a dozen cases of this affection. The affection is generally presented in the form of sharply-cut linear ulceration at the floor of the mouth. The base is indurated; the ulceration extends sometimes towards the lingual mucous membrane, sometimes towards the periosteum. Difficulty in deglutition, salivation, pain radiating to the neighboring parts, even to the ear, are the chief symptoms; this extension of the pain is probably due to exposure of the inferior maxillary nerve. All kinds of caustic agents have been applied to these ulcerations. The diagnosis is easy. Aphthous or syphilitic ulcerations do not occupy this position, and have not indurated bases.

"I have had occasion to study this affection anatomically, and have observed that the seat of the disease is the sublingual glands; the acini are increased to thrice their normal size, the epithelium is altered, all the cells present large nuclei, each containing three bright nucleoli. The prognosis is extremely serious. I have seen recoveries from epithelioma of the tongue and of the inner surfaces of the cheeks, but when the sublingual gland is the seat of the disease relapse occurs rapidly after operation, even before the cicatrization of the wound. This is one of the most frequently fatal forms of epithelioma. I have performed several operations; have enucleated the tumor, and removed it in different ways by means of the écraseur, but all to no purpose: relapses were speedy and death rapid."—*Half-Yearly Abstract of the Med. Sciences.*

A CASE OF HYDATID RANULA.—It is very probable that the following case is unique, and its analogue is not to be found in any treatise on pathological anatomy or surgery. It was one of an hydatid cyst of the floor of the mouth, simulating a ranula, whence the name given to it by Dr. Langier. This tumor was observed in a man aged sixty-one years, who was under the care of Professor Gosselin. The tumor made its appearance about six months before, and its development had been so rapid, that two months after the patient had noticed but a small swelling on the left side of the floor of the mouth the tumor had become very troublesome. A surgeon made a small puncture into the tumor, and passed a filiform seton. Inflammation followed, but the swelling again appeared. At the time of the man's admission a tumor of the size of a large walnut occupied the left half of the floor of the mouth, and passed beyond the median line. The tongue was forced upward and backward. Mastication was performed with great difficulty, and was almost impossible. The speech was nasal, and scarcely intelligible.

On palpation there was found to be manifest fluctuation, but the wall of the cyst was hard and thick, and of a consistence quite different to that of a ranula. In addition, the presence of some hard and indolent submaxillary glands, rolling under the finger, led to the fear of a complication. Besides this, there was no other local symptom of inflammation. The growth was treated by incision into the sac, excision of the superior wall, and cauterization with nitrate of silver. The patient recovered, and at the end of three months remained well.

When the incision was made it gave issue to a considerable quantity of pus, and at the same time some white membrane was expelled. Under the microscope this was found to be composed of amorphous tissue arranged in layers. The fluid contained in the hydatid cyst resembled pus, and presented a great quantity of compound granular cells, crystals of hæmatoidine and stearic acid, and finally echinococci and hooks.

The author, in comparing an hydatid cyst with tumors which have been collected under the title of ranula, establishes, as a differential character that may serve for diagnosis, the fact that in an hydatid cyst of the floor of the mouth the enveloping cyst is hard, thick, and resistant.—*Half-Yearly Abstract of the Medical Sciences.*

Tic-douloureux.—The patient had been operated on by Sir W. Fergusson five times for the same disease during the last six or eight years. It had always returned with great severity. All the ordinary means had been tried to arrest the neuralgia, but without effect; and the only relief the patient found was after the operation of dividing the nerve,—the third branch of the third pair. The pain while it lasted was excessive, and drove him to the operation. It was remarkable that, for a few days after the operation, the pain lasted in all its intensity, subsiding afterwards to perfect and complete relief. Since the last operation, eighteen months had elapsed, and the pain had been coming on for the last two months. In most cases, the intervals between relief become less and less, until both patient and surgeon tire out in operating; but in this case the intervals had rather increased. In this case, the shape of the jaw had altered a little after each operation, and Sir W. Fergusson had a little difficulty in finding the mental foramen. But, this found, he not only cut the nerve, but with a small gouge cleared the canal for half an inch.

In reference to the proposal to take out a piece of the jaw for extreme cases of neuralgia, he thought this would not in any degree answer the purpose better than division of the nerve. The pain does not depend altogether on union taking place, but on nervous nodes forming in the canal, just as they do in painful stumps. If the jaw is to be touched at all, it would only be necessary to remove a small length of the alveolar ridge down to the canal, and then to cut out a portion of the nerve. Sir W. Fergusson narrated a case of a similar kind where, after thirteen years' agony and the failure of every means resorted to for a cure, division gave instant and prolonged relief.—*King's College Hospital Reports, in British Med. Journal.*

Alveolar Hemorrhage.—The president, Mr. Williamson, said that, personally, he had not encountered any very alarming or troublesome cases of hemorrhage, and during thirty years of practice he had met with only a few cases requiring any attention after the patient left the operating room. He had never introduced any dossil of lint or other substance into the socket after an ordinary extraction, even temporarily, with instructions for the patient to remove it—not only because it interfered with the first great effort of nature to close the wound in her own way, but also, because patients were very apt to allow such plugs to remain in spite of such instructions, if productive of no uneasiness, and an offensive, slowly-healing socket was the result. Gentle compression of the sides of the wound with the fingers was advantageous; and as the subject had not been alluded to by the other speakers, he might say that the mineral acids were esteemed the best agents that could be used medicinally for the general system, and, where the pulse was very strong, acetate of lead, in two-grain doses, every two hours, was recommended for lowering it. Dr. Roberts advised active treatment at the commencement, and this was undoubtedly a wise course, the more so from the fact that in all cases of hemorrhage the blood becomes thinner as the loss goes on, such loss being supplied only by watery particles at first, which diminishes its coagulating power. Among the numerous styptics which have been spoken of and recommended, no mention had been made of nitric acid, which Dr. Richardson places highest among the liquid applications, in extreme cases. He also sets a higher value on the actual cautery than Dr. Roberts accords to it, but great difficulty must attend its use in a confined space like the mouth. No doubt pressure was the most valuable agent of all, either *per se* or assisted by styptics, and the mode of exerting it which seemed to him to promise most success was that of filling the socket with quick-setting plaster. Dr. Taft suggests that when the extracted tooth is used as a plug, it should have the fangs slightly coated with wax. He considered that much anxiety might be obviated, in cases of hemorrhage of a grave character, by collecting a portion of the blood in a spoon, and watching the time required for its coagulation. If normal, or nearly so, the practitioner would be either greatly relieved from his fears, and encouraged to look for a speedy suppression of the bleeding, or stimulated to the most active measures in the event of an abnormally slow coagulation.—*Proc. Odonto-Chirurgical Society, Glasgow. British Jour. Dental Science.*

STUTTERING RELIEVED BY AN ARTIFICIAL PALATE.—The following case of stuttering cured by an artificial palate may not be without interest to the readers of the *Journal:*

William D., a clerk, aged nineteen, was admitted an out-patient at St. Clement's Hospital, Leamington, under the care of Dr. Horace Leete. He had stammered from childhood, but lately so much that he could not retain any situation. After a thorough examination, Dr. Leete came to the conclusion that the primary cause of the stuttering was the abnormally high palate. He found that when the patient attempted to articulate those words necessitating the use of the tongue against the palate he failed, and so lost confidence in himself in speaking other words. Unless the teeth were quite closed, the palate could not be reached by the tongue. Feeling sure that this was the cause, Dr. Leete referred the case to the dental department of the hospital, and a suction plate of vulcanite was fitted three-eighths of an inch in thickness, scooped away underneath to form a large suction cavity and also to reduce the weight. At the end of three days his speech was much better, and it continued to improve up to the time of his discharge, when he spoke without hesitation.—*W. C. Williams, L.D.S., in British Journ. of Dental Science.*

DIFFICULTIES IN DENTAL PRACTICE.—Among the casualties that occur in filled teeth, there are none more frequent or more fatal in their results than the recurrence of decay in that part of the cavity, on the proximate parts of the teeth, next to the margin of the gum, or as some would express it, in the cervical wall of the cavity. Formerly it more often took place than now.

This is a very vulnerable point for the attack of decay: first, because the locality is one that affords ready lodgment, and retention of foreign substances in contact with the tooth, from which the brush and the ordinary means employed for cleansing the teeth will not remove it.

The teeth on the proximate sides are not so well covered and protected by enamel as upon other parts.

Another occasion of decay in the part referred to is found in the imperfect manner in which the operation of filling these cavities is accomplished. It is often quite difficult to make thorough excavation of the cervical walls of the proximate cavities; and especially is this true so far as giving proper form is concerned. And when this part of the work has been well done there may be failure to properly adapt and consolidate the filling; or the margin of the cavity is fractured or injured to a greater or less extent by improper contact with the instrument. But none of these unfavorable circumstances may exist, and yet decay occur at the cervical wall, and particularly if thorough cleanliness is not observed, but even this will sometimes fail to secure immunity from disease. Why is it that decay will sometimes under the most favorable circumstances take place?

There is perhaps no agent with which the teeth are brought into contact more definitely, and certainly injurious, than the vitiated mucus, the product of diseased mucous membrane. Inflammation of this tissue causes such a change in its secretion, that it will produce irritation and often decomposition of the dentine.

How important then that this tissue should be kept in a healthy condition, and everything avoided that would produce a diseased or even an abnormal condition! Of the various ways in which the mucous membrane may be affected injuriously, there is perhaps none more common than the use of dental plates, badly constructed, or made of improper material; but with this fact the dental profession is comparatively well acquainted. There is, however, an almost entire overlooking, or ignoring, practically, of the fact that the mucous membrane covering the margin of the gums, and particularly that part between the teeth, is exposed to more and greater irritants than at any other locality. The margins of the gums have not the same support as the mucous membrane and its subjacent tissue elsewhere; and is more exposed to bruising and laceration by violent contact.

This pernicious condition so often found between the teeth, is produced in various ways. The gums by having foreign substances crowded against and pressed upon them will become diseased; or by overlapping the sharp and rough borders of cavities of decay the same result will be produced. Protruding and overlapping filling will usually produce a similar difficulty; unskillful and rough manipulations often produce disease: violent wedging causing bruising of the gum, forcing down ligatures or rubber to produce laceration, should be avoided. Indeed, it should be remembered that whatever will produce irritation of the margins of the gums is productive of injury to the teeth to a greater or less extent. The dentist should possess the most thorough knowledge of the structure of the mucous membrane, of its functions, and of the abnormal conditions and diseases to which it is liable; and the proper method of treatment for each.—*Editorial in Dental Register.*

THYMOL.—The question is often asked, "What about thymol?" This agent has been before the profession for about two years, but few, however, having tested it, or introduced it into practice; a few have used it constantly since its introduction.

There is some difference of opinion in reference to its value; some claiming that it is as good if not better than carbolic acid in every respect. In this some take exceptions, averring that for exposed pulps it is objectionable, as in almost all cases severe pain results from its application. This it is claimed by some is caused by the glycerin which is used as a solvent and diluent for the thymic acid. This is a matter easily decided by experiment, which every one should make for himself. The fact is undeniable, however, that in most cases, nearly all indeed, severe pain follows its use on pulps. Of this class of agents for treating this tissue there is perhaps nothing better than carbolic acid; at least our experience thus far warrants such a conclusion. In the treatment of sensitive dentine thymol is quite as efficient as carbolic acid or anything we have used; and in the treatment of pulpless teeth, for correcting the fetid and offensive condition of pulp chambers and canals, in which the tissue has died and decomposed, it is better than anything we have ever used. It acts promptly as a deodorizer, and the disinfection is permanent, unless new débris is developed. It is a good stimulant, but does not possess the escharotic property to the same extent as carbolic acid; it does not therefore combine as readily with any constituent of the living tissue. In the treatment of alveolar abscess in some cases it serves a valuable purpose, while in others it is of no value whatever, owing, in part at least, to the absence of more vigorous escharotic properties. We do not regard "glycerole of thymol" as the best therapeutic agent in the treatment of exposed pulps; but it is good in the treatment of sensitive dentine, and very good in the treatment of pulpless teeth, and of some value in the treatment of alveolar abscess,—only, however, in cases of the milder form, and in connection with good constitutions. In the use of this agent, as with all others, a thorough knowledge and an active discriminating judgment should govern.—*Editorial in Dental Register.*

Control of Hemorrhage by Ipecac.—Dr. Martin reports a case of capillary hemorrhage controlled by small doses of ipecac, given until vomiting occurred. The tonsil had been injured, and ordinary styptics not proving efficacious, recourse was had to ipecac. As soon as vomiting occurred, after two-grain doses of the medicine given every two hours, the hemorrhage was effectually checked.—*New York Medical Journal.*

Fluid to Restore Putrid Tissues.—Dr. B. W. Richardson gives the following formula for a restorative fluid which he says will render soft, putrid tissues firm and inoffensive, so that they may be readily dissected.

℞.—Iodine, ʒi;
Methylated Ether, sp. gr. ·720, f℥x;
Absolute Alcohol, f℥i;
Strong Sulphuric Acid, fʒiv.

Dissolve the iodine in the ether and alcohol mixed together, then slowly drop in the sulphuric acid.—*New Remedies.*

To Prevent Abrasion of the Cheek from Spiral Springs.—When it is necessary to use spiral springs for the first time, much discomfort is often suffered by the patient on account of the chafing produced by them. This may be, in a great measure, prevented or relieved by one or other of the following plans:—Either make a solution in chloroform of pink rubber and paint over the surface of the springs before putting them on the set of teeth, or else obtain some of the very fine and thin elastic rubber tubing which is now made; and, having first passed a broach up the center of the spring to prevent crippling, draw this tubing over, so that the whole of it is covered except those portions that play against the teeth. In this way these necessary evils may be made tolerable to sensitive mouths by protecting the mucous membrane from their metallic feeling and irritation.—*O. C., in Monthly Review of Dental Surgery.*

To Obtain Suction.—After a perfect model has been taken and an artificial piece accurately fitted, the operator is often much perplexed to find that the plate will not hold up. In many cases this arises from nervousness on the part of the patient, causing the secretion of mucus to be arrested, and thus altering the condition of the surface of the mouth sufficiently to prevent suction being obtainable. The best remedy is to paint over the palate and adjacent gums with a solution of carbolic acid and glycerin (1 in 12); this will stimulate the action of the mucous follicles, and in a short time perfect adhesion of the plate to the palate will take place.—*O. C., in Monthly Review of Dental Surgery.*

Remarks upon Rubber.—Many dentists who wish to prepare artificial teeth with intermediate spaces will find a difficulty in choosing a rubber whose color is exactly like the natural gums. When rubber-work was yet in the cradle, the whole base was generally prepared of red rubber, and when an intermediate space was not to be avoided, and the red color displeased the eye, the pink was used. Unfortunately, there is no doubt that this is the very worst and the most brittle kind, and, therefore, it frequently occurred that the base was made of red, and the intermediate spaces of pink rubber. But as this was not altogether satisfactory, especially when a large space had to be covered, many people preferred white rubber, which, however, became yellow after vulcanization, and was still more unlike the natural color. It occurred to me, as I preferred making artificial teeth with spaces, to try—smile not—black rubber. My feelings struggled against it; but as a dark background (and as such the mouth is to be viewed) appears black, I made the trial, and—*probatum est.* Now, I fill in every intermediate space with black rubber, when not preparing the whole base of it. The gaps are carefully cut, and the intermediate space appears then much more natural than when made of any other sort of rubber. If any one tries this, without prejudice against it, he will be astonished at the result. Where the black can be used, and where not, must be determined by the case,—where, for example, the *limbus alveolaris* has to be replaced by artificial pink rubber, the black could not be used, as they would mix; but where the teeth come in direct contact with the natural gum, the black rubber will be found most advantageous for the intermediate spaces.—*Carl M. Munster, in Monthly Review of Dental Surgery.*

Amalgams.—During some recent experiments on amalgams, made with dry filings and mercury, with the object of obtaining one free from shrinkage, I find a law which apparently holds good in all cases, viz., that any alloy which, when reduced to filings, will harden when mixed with mercury, without shrinkage, is also free from shrinkage when cast. An alloy containing gold, platinum, silver, and tin, if poured at a clear red-heat into a warm iron mould, remains perfectly rigid, and cannot be removed from the mould without considerable force. If this alloy, in filings, is mixed with about fifteen to seventeen per cent. of mercury, and pressed into a solid mass into a mould, it remains tight in its place without shrinkage, after it has become as hard as good brass, and continued heavy pressure will not force a trace of a colored solution between the mould and the plug of amalgam. Whether this law holds good with every alloy I cannot say, but it evidently does so with a great many of similar composition to the one mentioned.—*Thomas Fletcher, F.C.S., in Chemical News.*

Improved Blow-pipe.—A common wide-mouthed bottle is carefully fitted with a caoutchouc cork, bored with two holes, into each of which passes a piece of glass tube, bent at a right angle. On to one of these tubes is slipped the caoutchouc tube, coming from an ordinary caoutchouc bellows, whilst the other is put in communication with the blow-pipe nozzle by means of four pieces of caoutchouc tubing, joined by three pieces of glass tube, drawn to a fine point at each end. This forms the main peculiarity of the arrangement. When air is forced into the bottle by the blower in jerks, it finds a difficulty in escaping as fast as it comes in, on account of the six fine openings in the glass tubes that it has to pass through on its way from the bottle to the nozzle, and it thus acquires a certain pressure in the bottle and flows out toward the nozzle as a regular blast. The bottle may be about six inches high by three and a half inches wide, with a neck one inch and a half in diameter; but of course the dimensions are of no great importance. On the whole, a somewhat large bottle is better than a small one. The pieces of glass tubing we use are two inches long by one-third of an inch in diameter. The apparatus will be stronger if, instead of a glass bottle, a tin cylinder is used, about four inches high by two inches in diameter, with two tin tubes opening into its top. Small metal cylinders, with a fine hole at each end, may be used instead of the little glass tubes. A blowing apparatus constructed in this manner will deliver a perfectly regular blast, and will be of practical interest to those who are thinking of working in places where it is difficult or impossible to repair the ordinary instruments.—*Scientific American.*

Hardness of Minerals and Metals.—We say in general that one body is harder than another if it can scratch it. In mineralogy hardness is an important property, and a scale was established by Mohs, running from one to ten, which is adopted by all writers of the present day. It is as follows:

| | | | |
|---|---|---|---|
| Talc | 1 | Feldspar | 6 |
| Gypsum | 2 | Quartz | 7 |
| Carbonate of lime | 3 | Topaz | 8 |
| Fluor spar | 4 | Corundum | 9 |
| Apatite | 5 | Diamond | 10 |

We constantly see it said in scientific works, that "the hardness is 6, 7, or 8," and by reference to the above table we at once comprehend the expression. The following list may serve to impress the subject on the mind:

| | | | |
|---|---|---|---|
| Diamond | 10 | Lapis lazuli | 6 |
| Ruby | 9 | Feldspar | 6 |
| Cymophane | 8·5 | Amphibole | 5·5 |
| Topaz | 8 | Phosphorite | 5 |
| Spinell | 8 | Fluor spar | 4 |
| Emerald | 8 | Cœlestine | 3·5 |
| Garnet | 7·5 | Barytes | 3·5 |
| Dicroite | 7·5 | Gypsum | 3 |
| Zircon | 7 | Carbonate of lime | 3 |
| Peridote | 7 | Mica | 2·5 |
| Quartz | 7 | Gypsum | 2 |
| Tourmaline | 7 | Chlorite | 1·5 |
| Opal | 6 | Talc | 1 |
| Turquoise | 6 | | |

The hardness of metals is usually estimated by the resistance offered by wires of equal diameter and same temperature when drawn through a hole of given size. The following is the order in which a few of the metals are ranged:

| | |
|---|---|
| Steel | 100 |
| Iron | 88 |
| Brass | 77 |
| Gold | 72 |
| Copper | 58 |
| Silver | 58 |
| Iron | 42 |
| Platinum | 38 |
| Copper | 38 |
| Zinc | 34 |
| Tin | 11 |
| Lead | 4 |

According to Thomson, the order of hardness of metals is as follows: steel, iron, platinum, copper, silver, gold, tin, antimony, lead.—*Journal of Applied Chemistry.*

To Cut and Bore India-Rubber Corks.—Dip the knife or cork-borer in solution of caustic potash or soda. The strength is of very little consequence, but it should not be weaker than the ordinary reagent solution. Alcohol is generally recommended, and it works well until it evaporates, which is generally long before the cork is cut or bored through, and more has to be applied; water acts just as well as alcohol, and lasts longer. When, however, a tolerably sharp knife is moistened with soda-lye, it goes through india-rubber quite as easily as through common cork; and the same may be said of a cork-borer, of whatever size. I have frequently bored inch holes in large caoutchouc stoppers, perfectly smooth and cylindrical, by this method. In order to finish the hole without the usual contraction of its diameter, the stopper should be held firmly against a flat surface of common cork till the borer passes into the latter.—*W. F. Donkin, in Chemical News.*

To Mend Rubber Hose.—Cut the hose apart where it is defective; obtain a piece of iron pipe, ten or twelve inches long; twist the hose over it until the ends meet, and wrap with strong twine, well waxed. —*Scientific American.*

Artificial Water Lime.—It has been long known to chemists that water lime consists substantially of quicklime, burnt clay, and a small portion of the oxides of iron and magnesia, but scarcely any effort has been made to utilize this knowledge. All yellow or red clays contain iron, and most specimens of lime in use contain the required magnesia. If burnt clay or brickdust in the fine powder be mixed with an equal weight of fresh-slacked lime, and twice this weight of clean, sharp sand be added, a compound will be formed which will harden under water equal to the best hydraulic cement.—*Exchange.*

Cement for Marble.—According to Ransome, the following mixture affords an admirable cement for marble and alabaster:

Stir up to a thick paste, by means of a solution of soda-water glass, 12 parts Portland cement, 6 parts prepared chalk, 6 parts fine sand, 1 part of infusorial earth. An irregular piece of coarse-grained marble was broken off by means of a hammer, and the surface coated by a brush with the above paste, and the fragment inserted in its place. After twenty-four hours it was found to be firmly set, and it was difficult to recognize the place of fracture. It is not necessary to apply heat.—*Journal of Applied Chemistry.*

Cement to Resist Water.—The trouble with red lead and oil is, that it is apt not always to adhere to glass. Probably the best cement is that which consists of three parts of powdered pipe-clay, one part oxide of iron, and as much linseed varnish as is sufficient to make a stiff paste ; or the so-called stone cement—nine parts of pipe-clay, one of litharge, and so much linseed oil as to be of the proper consistency. This becomes as hard as iron, and adheres with great tenacity to glass or almost any other substance.—*Journal of Applied Chemistry.*

CEMENT FOR GLASS AND PORCELAIN.—Leave ½ ounce beef bladder in tepid water until it swells up; rinse and digest in warm alcohol; dissolve ¼ ounce mastic in ¾ ounce alcohol, and pour the two solutions together, and add ¼ ounce pure gum ammoniac in powder. Shake thoroughly, and evaporate to proper consistence over a water bath. This mixture will keep in well-stoppered bottles, and, when required, can be rendered soft by immersing the bottle in warm water. Apply to warm surfaces with a brush. It is said to be excellent for broken glass and porcelain.—*Journal of Applied Chemistry.*

A GOOD CEMENT.—The following has been tested for cementing wood, iron, leather, glass, paper, and almost all kinds of household materials: best isinglass, half an ounce; rub it between the hands until it breaks down into a powder, put in a bottle, and put as much common acetic acid to it as will just wet the mass through; stand the bottle in some boiling water, and the paste will dissolve, and be fit to use at once; it will be solid when cold, but is easily warmed up the same as before. Leave the cork out when warming, or there is danger of bursting the bottle.—*Boston Journal of Chemistry.*

TOOTHPICKS.—Toothpicks have become an important article of trade. One toothpick factory in Canton, Maine, furnishes more work than all other business in town. Over one hundred cords of poplar have been hauled for its use this season, and converted into toothpicks. Each of the machines used will, it is said, make five thousand toothpicks a minute.—*American Artisan.*

REGULATIONS RELATING TO THE DIPLOMA IN DENTAL SURGERY IN THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—*Education.*—Candidates are required to produce the following certificates: Of being twenty-one years of age. Of having been engaged during four years in the acquirement of professional knowledge. Of having attended, at a school or schools recognized by this College, not less than one of each of the following courses of lectures, delivered by lecturers recognized by this College—namely, Anatomy, Physiology, Surgery, Medicine, Chemistry, and Materia Medica. Of having attended a second winter course of lectures on Anatomy, or a course of not less than twenty lectures on the Anatomy of the Head and Neck, delivered by lecturers recognized by this College. Of having performed Dissections at a recognized school during not less than nine months. Of having completed a course of Chemical Manipulation, under the superintendence of a teacher or lecturer recognized by this College. Of having attended, at a recognized hospital or hospitals in the United Kingdom, the Practice of Surgery and Clinical Lectures on Surgery during two winter sessions. Of having attended, at a recognized school, two courses of lectures upon each of the following subjects—namely, Dental Anatomy and Physiology (Human and Comparative), Dental Surgery, Dental Mechanics, and one course of lectures on Metallurgy, by lecturers recognized by this College. Of having been engaged, during a period of not less than three years, in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a competent practitioner. Of having attended at a recognized dental hospital, or in the dental department of a recognized general hospital, the Practice of Dental Surgery during the period of two years. N.B. The students of the London schools are required to register the above certificates at this College; and special returns will be required from the provincial schools.—*The Lancet.*

## HINTS AND QUERIES.

Does bone, abnormally developed (as in tumors, exostosis; in the various ossifications—the result of age or disease), always retain its peculiar characteristics of lacunæ, canaliculi, and Haversian canals? Do they always retain the same relative size, position, and arrangement as in the normal tissue? Is there sufficient characteristic difference between *cementum* and *bone* to warrant its consideration as a distinct tissue? Is the term "exostosis" correct, as applied to an enlargement of *cementum* at the root of a tooth?—T. W. H.

What is the advantage claimed by Dr. Mack, in making two holes in a root for the insertion of the pins or pivots to secure an artificial crown, when there is already a *central* cavity? and is there not a positive disadvantage in making two additional holes in the root? In what does his patent for attaching artificial crowns consist? In this connection I would also be glad to be informed in what his patent for securing dental fillings consists.—J. T. S.

Are dentists obliged to pay taxes for their business? Are they exempt from jury service?—Student.

There is no National tax, and we know of no State tax; but presume State laws vary in each respect.—Ed.

About three-fourths of my celluloid plates come out of the flask fractured. How shall I prevent it?—H.

Reply to "Metallic."—"What is the best method of fastening teeth with rubber on gold plate?" If the plate is under twenty carats, solder attachments; if over, perforate the well-polished surface and keep rubber clean.—St. Johns.

Reply to "Regulator."—"Is it necessary to be a licensee of the Goodyear Vulcanite Company to protect me in vulcanizing rubber plates for regulating cases?" The Goodyear Company claim the right, under their extended patents, to tax the use of all vulcanizable gums.—St. Johns.

Reply to "J. S."—To unite the mercury in a Whitney thermometer after it has become separated: Hold the thermometer in one hand, and strike against the other sharply.—St. Johns.

Reply to "H. A. B."—Certainly not, no more than for the physician; but he should charge for each visit in like manner.—St. Johns.

To Clean Arkansas Stone.—Alcohol and pumice stone will take the black off in half a minute; is cleaner than coal oil, and leaves the stone very clean and nice.—W. S. R.

Little Hints.—I offer the following, thinking they may be of use to some who have not learned them for themselves, as I did:

Amalgam may be readily picked up on the point of a plugger, which already has amalgam in its serrations, and carried to its place.

A dim mouth-mirror may be rendered clear by laying it on the patient's tongue.

The os-artificiel drop-tube may be used to syringe débris from a cavity.—J. W. Keyes.

STRIKING UP METAL PLATES.—My communication in the September number of the DENTAL COSMOS, page 519, has called forth a number of letters which I have not time to answer personally; and as the matter seems new to many, it may be of sufficient general interest to give the formula to the profession.

For striking up metal plate without moulding in sand, make an alloy of

| | |
|---|---|
| Bismuth, | 3 pounds. |
| Block tin, | 2 " |
| Lead, from ¼ to ½ | " |

Melt all together over a furnace; after which it will readily fuse over a spirit-lamp. Use a thin sheet-iron saddle.

Make two plaster casts, as the one will be broken in removing from the die. Build out the lower edge half an inch to three-quarters wider than the cast; trim smooth and surround with a strip of writing paper. Pour in the metal as cold as possible, and have the paper wide enough to let the metal cover the cast at least an inch deep, to give sufficient strength. When cold, remove the plaster, surround the new die with paper, as before, oil the cast and fill up, being careful to use the metal the second time as cold as possible, not much thinner than mush; pour suddenly and all at once.

From one of these halves make a second full set of dies, as the rugæ become somewhat battered under the hammer, and a second set is necessary to finish up on. The alloy at first may be a little brittle, but becomes tougher the oftener it is melted.

The expense in bismuth is more than zinc, but once prepared, it will last a lifetime. I am using the same I made twenty-two years ago, and it is better now than when first prepared. It melts at so low a temperature there is no steam generated even when the cast is wet. No air-bubbles, *no shrinkage perceptible*, and if the impression is perfect you will in every case have a perfectly fitting plate, which cannot be obtained when moulding in sand and using zinc and lead. —D. L. TALBOT, M.D., *Valparaiso, Indiana.*

HEMORRHAGE.—In the September issue of the COSMOS, a valuable idea is contributed by D. L. T., of Valparaiso, Indiana, on the use of burnt cork in arterial hemorrhage following the extraction of teeth. As many as four cases of hemorrhage have lately fallen under my notice, all of which have been successfully arrested by use of a cork compress, though without being burnt. The charring, however, will certainly render the compress more adjustable, and give it styptic properties.

Mr. H. C., aged thirty-three years, of a hemorrhagic tendency, had the right inferior second molar extracted. Although due caution was observed in its removal, the bony septum between the roots, together with the outer wall of the socket, was broken loose. The sequestrum, on being excised, was found to be about three-quarters of an inch long. An astringent wash was used immediately, and but little bleeding followed. Some fifteen hours after, I was called in and found his family physician attending, who informed me he had exhausted nearly the entire list of styptics with no avail. Soft beeswax at my suggestion was impressed into the socket and fractured surface, and capped with sheet gutta percha, and the jaws bandaged together, which gave indications of success. The physician afterwards informed me that bleeding soon began again, the blood oozing out around the teeth, and apparently through the gums. The patient becoming faint, digital compression of the carotid was resorted to, till a cork was so shaped as to fit down into the cavity over the gums and fractured surface, so that by closing the jaws compression upon all points from which the blood escaped could be steadily maintained, with the mouth partially opened for the escape of accumulating blood and saliva. The face of this plug compressor was covered with lint saturated with liquid persulphate of iron, and the jaws closed by bandage. At this period, the patient was so much exhausted as scarcely to be able to speak above a whisper, yet the bleeding was immediately arrested.

By trimming a cork the shape of the extracted root, and particularly when the teeth can support it laterally, I have found no difficulty in arresting hemorrhage. This process will succeed when the application of all the styptics in powders and solution fail, being dislodged by the force of the jetting blood.—E. S. CHISHOLM, *Tuscumbia, Alabama.*

IN reply to inquiries as to the character of legislation being sought in different States regulating the practice of dentistry, we publish the following as a sample:

*An Act to regulate the practice of dentistry, and to protect the people against empiricism in relation thereto, in the State of Georgia.*

SEC. 1. Be it enacted by the General Assembly, That from and after the passage of this Act it shall be unlawful for any person to engage in the practice of dentistry in the State of Georgia, unless said person has graduated and received a diploma from the Faculty of a Dental College, chartered under the authority of some one of the United States or foreign governments, or shall have obtained a license from a Board of Dentists, duly authorized and appointed by this Act, to issue such license.

SEC. 2. That the Board of Examiners shall consist of five (5) dental graduates or practitioners of dentistry, who are members in good standing of the Georgia State Dental Society; provided, that said graduates or practitioners have been practicing in the State of Georgia for a term of not less than three (3) years. Said Board shall be elected to serve for two years. The President of said Georgia State Dental Society shall have power to fill all vacancies in said Board for unexpired terms.

SEC. 3. That it shall be the duty of this Board, first, to meet annually at the time of meeting of the Georgia State Dental Society, or oftener, at the call of any three of the members of said Board. Thirty days' notice must be given of the annual meetings. Secondly, to prescribe a course of reading for those who study dentistry under private instruction. Thirdly, to grant a license to any applicant who shall furnish satisfactory evidence of having graduated and received a diploma from any incorporated dental college, without fee, charge or examination. Fourthly, to grant license to all other applicants who undergo a satisfactory examination. Fifthly, to keep a book, in which shall be registered the names of all persons licensed to practice dentistry in the State of Georgia.

SEC. 4. That the books so kept shall be a book of record; and a transcript from it, certified to by the officer who has it in keeping, with the common seal, shall be evidence in any court in the State.

SEC. 5. That three members of said board shall constitute a quorum for the transaction of business, and should a quorum not be present on the day appointed for their meeting, those present may adjourn from day to day until a quorum is present.

SEC. 6. That one member of said board may grant a license to an applicant to practice until the next regular meeting of the board, when he shall report the fact, at which time the temporary license shall expire, but such temporary licenses shall not be granted by a member of the board after the board has rejected the applicant.

SEC. 7. That any person who shall, in violation of this Act, practice dentistry in the State of Georgia for a fee or reward, shall be liable to indictment, and on conviction, shall be fined not less than fifty, or more than three hundred dollars; provided that nothing in this Act shall be construed to prevent any person from extracting teeth; and provided further that none of the provisions of this Act shall apply to regular licensed physicians and surgeons.

SEC. 8. That on trial of such indictment, it shall be incumbent on the defendant to show that he has authority, under the law, to practice dentistry, to exempt himself from such penalty.

SEC. 9. That one-half of all fines collected shall inure to the informer, and the other half to the educational fund of the county.

SEC. 10. That dentists who have been in practice prior to the passage of this Act are exempt from all provisions of the same.

SEC. 11. Repeals conflicting laws.

Approved August 24, 1872.

VIVA VOCE EXAMINATIONS OF STUDENTS.—The *British Journal of Dental Science* furnishes the following examples of the questions put by the Dental Examining Board of the Royal College of Surgeons of England for the diploma in dental surgery. They will be of value to students as indicating the character of the examination which they should be qualified to pass:

### *Dental Surgery.*

Dilacerated teeth, shown specimen of, and asked during what period it had occurred.

What is caries, its symptoms, and treatment?

What escharotics would you use to destroy the tooth-pulp?

Describe the development of the dentinal pulp.

What would be your treatment for a fungous granulation of the tooth-pulp?

Exostosis, periostitis, diagnosis, and treatment of.

State the pathological changes that occur in the pulp as the result of inflammation.

How would you pivot a tooth? steps of the operation, conditions that might arise, and treatment of those conditions. Pivoting, when contraindicated.

The pulp being exposed by caries or otherwise, what would be your treatment? Under what circumstances would you drill into the pulp cavity?

How would you diagnose idiopathic neuralgia from that caused by a carious tooth?

Practical questions on gold foil, adhesive and non-adhesive, and the different methods of working them.

Questions on extraction of teeth, more especially wisdom teeth.

Questioned on extraction of teeth with especial questions on where the elevator is used; how would you use it? in what cases? Would you use it for upper wisdoms? Your reasons for not doing so, etc.

The accidents of extractions. Paralysis of inferior dental nerve following extraction, its symptoms; treatment.

Alveolar abscess. What is abscess? Where do you generally find it? General course an abscess runs. If you had two teeth equally decayed and an abscess opening between the two, how diagnose the offender?

Regulating cases. How would you turn a tooth besides making a regulating case for it?

Which would you remove, supposing the incisor teeth were very much protruded and all the other teeth were sound and you wanted to bring the front teeth in?

What may have been the possible cause of the protrusion of the front teeth?

What would be your treatment in closure of the jaw by a cicatrix; and what other things may close the jaw?

What are the different stages set up when a tooth aches?

What is an alveolar abscess, its course and treatment?

What is the appearance of the opening, supposing the abscess to have burst through the cheek; and how would you know which tooth it proceeded from if it seemed to come from between two teeth and they were both decayed?

Describe the different methods of working adhesive and non-adhesive gold, and also the instruments best adapted for each.

How would you pivot a tooth? and if inflammation ensued, what methods would you adopt in the various stages?

How would you diagnose inflammation of the pulp? and if caused by the pressure of a filling, what treatment would you use?

What is the cause of pus exuding from the alveolus and around the neck of a oth without abscess, and what is the treatment?

Does contraction take place in the jaw after the removal of temporary teeth?

What has been done in the mouths of the models shown?

What is the treatment of chronic hypertrophy of the gums?

What is the treatment of a congested and irritable state of the gums?

Shown specimens and preparations of ossification of the pulp; polypus of pulp, etc. etc., and asked cause and treatment.

Abscess of antrum, diagnosis and treatment.

Alveolar abscess, ditto, ditto.

Questions on the diagnosis of sinus from alveolar abscess.

Caries; varieties of ditto; which is the most painful?

Pulp; treatment when exposed by caries or otherwise; capping and destruction of pulp; material used in capping, etc.

Exostosis, diagnosis and treatment of.

### *Surgery.*

Describe a ranula, how caused.

Do you ever get an ulcer of the tongue caused by decayed teeth? in what situation?

Can you get a discharge from the nose through irritation of decayed teeth?

Mention some of the tumors which we find in the upper jaw, malignant and non-malignant.

Symptoms of disease of the temporo-maxillary articulation.

How do you account for earache and a discharge from the external meatus of the ear in consequence of carious teeth?

Disease of jaws, necrosis, etc. Epulis, treatment, etc. The effects of tertiary syphilis on the bones of the face, soft tissues, and teeth. Epithelioma, treatment, etc. Fractures and dislocations of the lower jaw. Clefts of hard and soft palate, treatment, etc. Harelip, operation for, etc. Tongue-tie, operation for. Diseases of tonsils. Parotitis. Diseases of antrum, etc. Dentigerous cysts, etc.

Is it necessary to remove bone in consequence of abscess in the substance of the jaws?

Disease of mucous membrane of the mouth in early years.

Ulcers and their treatment, especially those of the tongue, how caused and treated.

The action of nitrate of silver, physiological.

Carious teeth and discharge from the nose; how would you account for latter?

Carious tooth and discharge from ear; how do you account for latter?

Suppose a young man, say twenty-one, came to you with great difficulty in opening his mouth,—pain and swelling of the jaw, rheumatic pains in the shoulders, etc., what would be the cause of this, and state treatment?

What is a dentigerous cyst? what is it formed by?

Have you ever seen the tongue furred? What forms the fur? And, also, what is it caused by?

What would be your treatment of an ulcer of tongue, caused by ragged edge of a carious tooth?

Describe the action of nitrate of silver if applied to an ulcer.

What kind of a deposit do you get from the salivary glands, and where does it accumulate in the greatest abundance?

Do you ever get an obstruction of the ducts of the salivary glands? And if so, give the treatment.

What is a ranula? And would you, as a dental surgeon, operate for a removal?

Fractures of the jaw, symptoms, causes, relatively frequent parts of the diagnosis, prognosis, treatment by all the methods used.

Epithelioma of the lower lip, pathology, causes, symptoms, treatment.

State the names of insertion of harelip pins, and what is the object to begained by them.

Should they include the mucous membrane of the lip?

State the differences between syphilitic and congenital cleft palate; the treatment to be adopted.

Does the ovoid become most affected in one or the other, and which is most capable of cure?

What leads to closure of the jaw with regard to disease of the temporo-maxillary articulation?

Dislocation of the jaw, symptoms, causes, pathology, and methods of treatment.

Is it ever without deformity, and does a partial dislocation ever occur, and at what period of life?

Questions on epulis, diagnosis, and treatment.

Ulcers of tongue, diagnosis between—1, simple ulcer caused by the ragged edge of a decayed tooth; 2, syphilitic ulcer; and 3, epithelioma, and the treatment indicated in each case.

Harelip, treatment. Which harelip pin would you put in first, and how deep in the harelip would you pass it?

Do you get an ulcer of the tongue in primary, secondary, or tertiary syphilis?

Do you ever get disease of the temporo-maxillary articulation?

Cleft palate, treatment. What muscles do you divide in staphyloraphy? How would you treat a cleft produced by syphilitic ulceration?

### *Dental Anatomy and Physiology.*

Describe the microscopical structure of the tooth-pulp. Structure and formation of dentine; also of secondary dentine. Under what circumstances does the pulp cavity become filled with osseous tissue?

Describe structure of cementum and of bone. How would you distinguish one from the other microscopically?

In germinate teeth what constitutes the bond of union?

In what condition are the jaws of a three months' fœtus?

When is primary dentition completed?

Questioned on the early stage of formation of dental tissues.

In what respect in the early condition of growth are the enamel, cement, and dentine alike?

What are the peculiarities of the cell nuclei of the dentine, enamel, and cementum? How are the corpuscula Purkinjei of cementum formed?

What is the structure of the three pulps from which the dental tissues are formed?

In what way do the cells of the three pulps differ, etc.?

Given models to determine ages.

What is the structure of dentine?

Give the structure of the enamel pulp.

Where does calcification begin in the dentine, enamel, and cementum?

At what age do you find the first appearance of dental organs?

When is permanent dentition completed?

Age at which the temporary canine is cut.

When is primary dentition completed?

How does development take place in each of the three pulps, from within outwards, or *vice versa?*

What is the surface of the dentine like when the enamel has been removed?

Describe the manner of deposition of the earthy salts in enamel, dentine, and cement.

What are the courses of the contour markings in the enamel and dentine?

How do the dentinal tubules end?

Describe the process of calcification in the dentine.

What is the surface of dentine like when the enamel has been removed from it?

What is found at the summit of the elevations mentioned?

Questions on the *gums.* Structure, epithelium, and papillæ of gums; blood-vessels to ditto, etc.; nerve supply, etc.

Questions on the *periosteum* of sockets, etc.; structure, etc.

*Enamel*, structure of, and calcification of enamel fibers, etc.

Dentinal tubes and fibers.

Questions on dentinal fibers and their sheaths.

Dental pulp, minute structure of. Arrangement of nerves and vessels in ditto.

Are the nerves of the pulp continued on into the dentine?

Questions on the membrana eboris.

What is the appearance of the dentine when the enamel is removed?

Structure of secondary dentine.

### *Anatomy and Physiology.*

What are the muscles of mastication, their origin, insertion, action, and nerve supply?

Point out where the facial artery crosses the lower jaw.

What nerves pass out of the skull through the sphenoidal foramen, and also through the foramen rotundum and foramen ovale?

What nerves supply the teeth in the upper jaw?

What muscles depress the lower jaw, and what nerves supply them?

Where does Steno's duct open, also Wharton's duct?

By how many ducts does the sublingual gland open into the mouth?

What muscles depress the jaw?

What muscles protrude the jaw?

What muscles draw back the jaw?

What muscles fix the hyoid bone?

What muscles protrude tongue?

What muscles draw in and draw back tongue, and give their nervous supply?

Salivary glands, position, also of ducts. Structure. Chemical composition of saliva, its uses. Other glands situated in the oral cavity, their use and structure. Deglutition, changes of shape undergone by pharynx, etc. Alimentation. Structure and nervous supply of œsophagus and stomach. Gastric juice, composition and use. Structure of a gastric follicle. Nerve of sensation to face. Symptoms of paralysis of the motor nerve of the face. Soft palate. Action of muscles and their nerve supply. Nerve supply to upper and lower teeth. Position and structure of tonsils. Changes produced by age in lower maxillæ.

Describe the temporo-maxillary articulation. Difference in fœtus and adult.

Tongue, structure, and nerve supply.

Where do the lymphatics of the teeth empty themselves?

Describe the lower jaw. Articulation.

What bones enter into the formation of the joint?

How many, and what are the ligaments of the joint, their origin and insertion?

Is the interarticular ligament ever perforated?

What are the muscles of mastication? Give the origin, insertion, and nerve supply of each.

Given a lower jaw, to mark out the exact insertions of internal pterygoid, external pterygoid, buccinator, masseter, digastric, etc.

Microscopical specimens shown; what are they, and from what portion of the tooth did they come, asked.

Nerve of supply to ear. Parotid gland, etc.

Where do the lymphatics of the internal auditory meatus empty themselves?

What are the muscles attached to the lower jaw? (Given specimens to point them out.) The muscles that depress the lower jaw; that raise the jaw; that draw back the jaw; that protrude the jaw? Their attachments and nervous supply? Blood supply also? What are the muscles of mastication? Nervous supply? Describe actions and use of buccinator. Give the course of inferior dental nerve.

How does the inferior maxillary nerve leave the skull?

What passes through the foramen rotundum?

Does the superior maxillary nerve supply any of the muscles of mastication?

What arteries supply the incisor and molar teeth of the upper maxilla?

What are these arteries branches of?

Describe the course of the internal maxillary artery with regard to the ramus of the jaw and the pterygoid muscles. Name all its branches in which it ends.

What nerves supply the parotid gland?

What nerves, vessels, arteries, and veins are in relation with the parotid gland?

What does the infra-orbital artery anastomose with?

What other arteries supply the face besides the facial?

What does the venous blood of the face enter, and what vein does it eventually enter?

What is the upper surface of the palatal process of the superior maxilla like?

What fits into the groove described?

Give the relations of the vomer.

How is the septum of the nose completed?

Is that septum always straight, and, if not, how may the deviation be accounted for?

In harelip, what forms the portion between the two fissures?

How would you treat that portion if very much protruded?

Questions on the bones. Nasal bones, articulations, etc. What bones form the hard palate? With what bones does the palate bone articulate, and what fossæ does it enter into the formation of?

Parotid gland, vessels and nerves that pass through it.

Soft palate, structure of; muscles, etc.

Pillars of fauces, what formed by.

Tonsils, situation of, structure, glands, etc.

Œsophagus and pharynx nerve supply, etc.

Tongue, structure, papillæ, etc. Action of muscles, etc.

What bones form the septum of the nose?

What bones enter into the formation of the orbit?

What is the distribution of the glosso-pharyngeal nerve?

THE

# DENTAL COSMOS.

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## ORIGINAL COMMUNICATIONS.

### DENTAL PATHOLOGY AND THERAPEUTICS.

BY J. FOSTER FLAGG, D.D.S.,

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[Entered according to act of Congress, in the year 1872, by J. Foster Flagg, D.D.S.,
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(Continued from page 582.)

WE pass, then, to the *eighth week* before we notice the completion, anteriorly, of the primitive dental groove, which now soon becomes equally distinct with those side portions which have preceded it, and which is represented by diagram 2: A, rudimentary mucous membrane; B, rudimentary periosteum. At the ninth week a papillary eminence appears, which is produced by the *dental pulp*, located beneath the mucous membrane, which dips into the groove, and upon the periosteum which thus dips beneath it. Diagram 3: A, mucous membrane; B, periosteum; C, dental pulp. From this time the pulp increases in size, covered by the growing mucous membrane, and thus assumes markedly the papillary form. Growth of surrounding tissue now takes place, and opercula spring up as a sequence; two opercula for each incisor; one anterior (the larger) and one posterior (the smaller). The cuspids have three opercula, and the molars four or five each; these correspond with the number of cusps, and the edges of the opercula correspond with the sulci (fissures) upon the articulating surfaces. The opercula are covered with mucous membrane, which, as they grow, will be noticed to be gradually forming an outside and inside surface. The periosteum also dips deeper into that structure, which is eventually to become jaw-bone, and thus is still found in position beneath and partially surrounding the growing pulp. Diagram 4: A, mucous membrane; B, periosteum; C, dental pulp, advanced to the follicular stage, the opercula almost closing the mouth of the follicle. It is at this time that the crescentic depression, which is to aid in forming the secondary dental groove, appears above and posterior to the developing pulp, accompanied with its dipping mucous membrane and periosteum, in which depression between these membranes is developed in due time the pulp of the permanent inferior incisor. As development progresses, we have, as seen in diagram 5, the edges of the opercula touching, the plane of the gum structure preserving its integrity, the mucous membrane A covering the pulp, the mucous membrane A lining the almost completed sac, internally, and the mucous membrane A covering the rudimentary gum tissue externally, while the periosteum B not only lines the cavity which contains the developing tooth, the walls of which will be bone, but the periosteum B also covers the exterior of that surrounding tissue which, when ossified, will be the jaw-bone. By this time the pulp C has assumed somewhat the shape of the tooth it is to form, and now rapidly increases in size, until, as seen in diagram 6, the lips of the opercula have coalesced, the mucous membrane A of the gum presents the smooth, unbroken face which existed before the first depression of the dental groove, the periosteum B of the jaw is in position; forming tissue exists between this and the now closed and shaping cavity of reception for the temporary tooth, which also is lined with periosteum B; that now, together with the pulp, receives its nourishment from the developing dental vessels proper. The pulp continues increasing until it has attained the dimensions of the fully formed tooth-bone (dentine), when it, together with its covering layer of what was mucous membrane, ceases to enlarge. It will be remembered that a space exists between the layer of mucous membrane covering the pulp and the mucous membrane lining the opercula. It is into this space between these membranes that there is now poured out a plasm, which has been stated by all the standard authors to be the product of the modified mucous membrane lining the opercula, but which I believe (following Garretson) to be an emanation from the dental pulp, so impressed in its passage through the modified mucous membrane covering the pulp as to become subservient to the purpose of enamel formation. Thus it is that I accept for that layer of modified mucous membrane the term "*enamel membrane*," and class enamel as an epidermic structure. The layer of mucous membrane which lines the inner portion of the coalesced opercula continues to grow, toughening in its growth, until it assumes the shape and size of the exterior of the enamel, in which form it maintains the enamel plasm until a very advanced stage of its organization,—indeed, until the eruption of the tooth takes place. By the time, however, that this perfect growth of the *matricial* or *form-giving* membrane D has taken place, and the now considerable space between it and the *enamel membrane* has become filled with enamel plasm, a recession of the dental pulp proper takes place, and an exudation of dentinal plasm is found between the external surface of the hyaloid pulp structure C, and the inner surface of the *enamel membrane* E. This soon commences its dentinal development, and not only is the peculiar fibrous appearance characteristic of *dentine* observable, but at that portion farthest from the dental pulp, and immediately contiguous to the enamel membrane, the further organization of commencing dentinal calcification is perceptible; this classes *dentine* as a dermic structure. Simultaneously with the formation of this cap, or crust, or cusp of hardened structure, we find the external face of the enamel membrane to have become impressed with hexagonal indentations, within which the enamel plasm, having so far matured as to have become in part crystallizable, hexagonal crystallized enamel rods (as they are termed) commence their formation. This crystallization of rods is continued outwardly until they reach the inner surface of the *matricial membrane*, and are apparently moulded into shape by it. Between the enamel rods, from the commencement of their formation to the completion of their proper length, we have a network of organic structure, through the instrumentality of which the complete hardness of the enamel is effected, and its future nourishment from the enamel membrane maintained. This final hardening takes place from the exterior inwardly, and thus it is that we find the finished enamel hardest externally. During the progress of the enamel formation we have the recession of the pulp (to which reference has been made) continuing, accompanied with the exudation of dentinal plasm and the gradual development of formed dentine. By this time (at birth) the form of the crown of the tooth has been fully developed, and, as seen in diagram 7, the mucous membrane A covers smoothly the gum; the periosteum B covers the jaw-bone; the dental pulp C is somewhat lessened in size within the crown of the tooth, and is covered with its cap of formed and forming dentine; the enamel membrane E is between the dentine and the enamel, forming the source of nourishment for that tissue, and the whole crown is invested by the matricial or form-giving membrane D. (This is the "persistent membrane" of Nasmyth, page 114, "Nasmyth's Researches on the Teeth.") But we observe also that the receptacle for the growing root of the tooth (called the *alveolus*) is being made, and that the periosteum B, which we have followed in its changes until we found it lining the cavity containing the developing tooth, is now dipping downward to line the alveolus; and we shall now see that at the portion of the tooth between the crown and root, which is called the *neck*, there is apparently a fusion of the matricial membrane with the enamel membrane, and below this with the true *periosteum*. During the whole process of crown-formation there is never any attachment of the matricial or form-giving membrane to the external surface of the enamel, it being possible at any time to pass a thin probe between it and the organizing enamel structure; but concomitant with its apparent fusion with the enamel membrane there is positive adhesion to the exterior of the dentine, and afterwards to the cementum. Great modification of function also occurs to the matricial membrane, by means of which, while it is still maintained as a form-giving membrane, it is made a *peridentium*, and is partially subservient to the purpose of nourishing the most highly organized of the three hard structures of the tooth. The layer of mucous membrane, which we have found to become the enamel membrane E, is also elongated from the neck of the tooth fusing with the matricial membrane D, before that membrane fuses with the periosteum, and separating from the matricial membrane again when that membrane fuses with the periosteum B; thus we have the neck of the tooth covered with a fusion of matricial and enamel membrane. When we speak thus of the fusion, elongation, separation, etc., of these various membranes, I wish it distinctly understood to be *theoretic* teaching, for the most skillful microscopists have been, as yet, unable to follow positively the growth of these structures, or, indeed, to point out any peculiarity by which one might be distinguished from another; but, although we cannot define the line of demarkation existing between the periosteum lining the alveolus and the peridentium covering the root of the tooth, yet we argue that such distinct membraneous structure *must* exist, from the fact that while we find true exostosed material upon the bone side of periosteum, and a product approximating to this in its microscopic structure, which we call that of dental exostosis, upon the root side of its investing membrane, yet we *never* find osseous union of the root of a tooth with the walls of its alveolus.

As I have said, we see in diagram 7 the periosteum B dipping to line the alveolus. We also follow the matricial membrane D as it fuses with the periosteum and elongates to become the *peridentium* F, the form-giving, and partially the nourishing membrane to the root of the tooth. We also notice the enamel membrane E after its fusion with the matricial membrane at the neck of the tooth again separating from it and following the edge of the pulp, thus forming the inner wall of a gradually increasing space between it and the peridentium, into which space is gradually poured out from the pulp a plasm, which from the impress received in passing through the modified enamel membrane, now becomes *cemental membrane* G, and is organized into *cementum*, which material covers the root of the tooth as the enamel does the crown. The enamel is thickest upon the crown at the greatest distance from the neck, and tapers to a feather edge at the neck; the cementum commences with a feather edge at the neck, and is thickest at the apex or extremity of the root. This classes *cementum* as an epidermic structure.

From this period we have, as month after month of infantile life passes, the gradual continuance of the formation of the alveolus, the gradual elongation and tapering of the pulp, and the gradual organization of the external portion of root dentine, covered, as it is developed, with cementum; the whole resulting in the partial formation of the root of the tooth. (See Diagram 8.) But now we also notice the upper portion of the bony cell in which the growing tooth is contained becoming more and more thin, until at last a small orifice is pierced through it, which opening, H, rapidly increases in size until it is of sufficient calibre to permit the passage of the tooth. Dental physiologists have discussed at great length the various *anticipatory* steps which occur in connection with dental development, such as the formation of the "cavities of reception" for the germs of the permanent teeth, the formation of the alveoli, the perforation of the cells containing the temporary and permanent teeth, the absorption of the roots of the temporary teeth, etc., and have both advanced and combated what is termed the theory of *pressure* as the *cause* for all this; but it seems to me unnecessary to seek for any other cause than the developmental order which is marked out from conception, and which thus proceeds normally, unless interfered with by disease or death of some of the tissues concerned in the work of progress. Immediately after the absorption of the bony structure between the tooth and the gum, *the passage of the tooth through the gum commences to take place*, during the progress of which the mucous membrane covering the gum tissue is at last perforated, and the tooth is passed from the saccular to the *eruptive* stage. It now generally, with *seemingly* extraordinary rapidity, emerges from the gum, continuing to do so until the entire crown is emptied and the neck of the tooth is neatly encircled and covered with the festooned edge of the gum. The root of the tooth is even at this time but partially formed. The opening at the end of the root is still very large, and the edges of consolidated dentinal and cemental structure around the dental pulp very thin and sharp. But in time all this changes, until at length the whole root is formed with its characteristic tapering shape and smoothly pointed apex, through an orifice in which, called the *apicial foramen*, pass the nerve, artery, and veins which are the avenues for sensation and nutrition to the enclosed dental pulp. Thus we have the fully formed tooth; physiologically divided into *Enamel, Dentine, and Cementum*, anatomically divided into *Crown*, *Neck*, and *Root*, and containing the *Dental Pulp*.

(To be continued.)

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## EXPOSED PULP—MODE OF TREATMENT.

BY G. W. KLUMP, D.D.S., WILLIAMSPORT, PA.

(Read before the Susquehanna Dental Association, May 15th, 1872.)

As to the proper mode of treating an exposed pulp, so wide a difference of opinion prevails that it still seems to be an open question with the profession. While some gentlemen of acknowledged skill and professional ability assert that as long as the pulps are not wholly deprived of vitality they may by proper treatment be preserved and perform their normal functions, other gentlemen of equal skill and ability will invariably devitalize all dental pulps, whether recently exposed and in a healthy condition, or when long exposed and in a congested, inflamed, or partially dead state.

Now here are two extremes advocated with an earnestness and zeal by men of unquestionable veracity and acknowledged ability, and with such force that it seems difficult for the student to come to any just conclusion as to the best mode of treatment.

That it is much more desirable to retain a living pulp, to perform its proper functions in a tooth, than to devitalize it, none will deny. And that teeth having exposed pulps have been treated and successfully capped, not only with the preparations of oxychloride of zinc, but with asbestos, lead, quill, gold, and other substances, retaining their vitality for years, we have unquestionable evidence. But that many practitioners of eminence, who formerly practiced capping with oxychloride, and, to some extent, advocated it, have since reported many failures, and now almost invariably devitalize them, we know equally well.

That the habits and temperament as well as the general health of the patient may have some influence, we readily admit; but that success or failure depends entirely on these influences, as many suppose, does not seem to us probable. May it not as likely depend on the condition of the pulp itself at the time of capping, or perhaps the treatment given it preparatory to capping?

That a healthy pulp can be successfully capped for a patient of good constitution so as to retain its vitality, nearly all are ready to admit. But we believe that a healthy pulp can be saved for persons of ordinary or even delicate health in nearly every instance, while a diseased pulp can seldom if ever be saved if capped while in a diseased condition, however good the general health of the patient may be. The latter we believe to be the cause of so many unsuccessful operations reported as evidence against capping.

Caries penetrating the pulp-chamber, the pulp being healthy, is a condition perhaps seldom seen excepting as the result of an accident during an operation. It would certainly be better to leave the diseased dentine covering the pulp and fill over that, so as to prevent further progress of decay, than to remove the decomposed dentine and expose the pulp. That a pulp is entirely healthy at any time when exposed by caries is doubtful, yet there are instances where there seems to be nothing to show that the pulp is in any way diseased. There is little doubt that by proper treatment at the hands of a skillful dentist, a large majority of diseased exposed pulps can be restored to health, and then, if properly capped, the vitality of the tooth can be retained, we verily believe, for life. For we believe that, when a pulp is destroyed by oxychloride, it is caused by the caustic effect of the capping at the time of its introduction or immediately following it; and if not destroyed, then we doubt whether it is any more liable to lose its vitality than a pulp which is not exposed in a tooth having an equally large filling. We would here state that in a recent controversy with an eminent professor of operative dentistry, who has now almost entirely abandoned the capping of exposed pulps, he admitted as his conviction that, if a pulp remained alive three or six months after capping, the capping after that could scarcely cause its destruction, and that when it did it was in consequence of the irritation produced at the time of the operation or immediately following it.

While we are not always and under all circumstances in favor of capping exposed pulps, we believe that when it is desirable a large majority of teeth so conditioned may be treated and restored to health.

How to obtain such results, and what remedy to use, are questions of importance which we propose to answer, as far as we are able, from our own practice and observation. We will first consider the preparation for filling a tooth with the pulp exposed and probably aching at the time the patient presents himself.

Our first effort is to remove all decay and foreign matter from over and around the pulp without injuring the pulp itself; next prepare a piece of spunk of suitable size, moistened with carbolic acid, tincture of aconite, or any good anodyne, and after drying out the cavity carefully, place the spunk over the exposed pulp and seal it up with cotton and sandarac, being cautious not to use too much cotton, so as to cause a pressure on the pulp when the cotton swells. We let this remain in the tooth one, two, or three days, as the case may be, with special directions to the patient to come in, without regard to the appointment, at the first approach of pain. We regard this last injunction as highly necessary in the proper treatment of an inflamed pulp. If we can by this means keep an exposed pulp ten days or even a week without giving any pain, we consider the case one favorable for capping with oxychloride.

We now remove any decay that may yet remain along the edges of the cavity, and insert, for a few moments only, a pledget of cotton with carbolic acid. We then prepare another pledget of cotton moistened with glycerole of thymol, and after removing the former pledget, place this in the cavity and again seal up, say from five to ten minutes. In the mean time, we take as much of the oxychloride and liquid as we expect to use, placing them on a glass slide near each other. We select an excavator of proper shape and size, and roll some cotton around it tightly, forming a kind of cotton probe. Having a bottle of collodion on hand, we now by any means preferable protect the cavity from the fluids of the mouth, remove the cotton with the thymol, dry out the cavity, and, with cotton saturated with collodion, give the entire cavity a coating. We now mix oxychloride to proper consistency, and introduce to the orifice of the cavity with spatula or flat burnishers, and with the cotton probe press to its proper place; keep it dry ten or fifteen minutes, then give it a coating with sandarac or wax, or what is better, seal up with cotton and sandarac, and let it so remain ten days or two weeks. If the tooth during this time remains perfectly comfortable, it may now be filled over the capping with the permanent filling.

The above has for some time been our usual mode of practice. The almost unbearable pain which so frequently followed the capping, and which was such a serious cause of anxiety to both patient and operator, is by this means either entirely removed or so slight that it forms no important objection to capping, and as we would naturally infer, is much less liable to produce destruction of the pulp than when such severe pain follows the operation.

Recently, when we have had those exceedingly sensitive teeth to treat, such as were affected by the least impression of heat and cold, and even in teeth not unusually sensitive, but such as had deep cavities so as to allow the use of a good thickness of the capping, in order to make the capping as nearly a perfect non-conductor as possible, we have been in the habit of mixing a considerable quantity of asbestos with the oxychloride, with very happy results. The difficulty we at first had in getting the asbestos and oxychloride to mix nicely, we have recently overcome, by first placing the desired quantity of asbestos on a glass slide and completely saturating it with the liquid of the oxychloride. We then proceed the same as when we use the oxychloride alone, mixing a sufficient quantity of the powder with the saturated asbestos to make a paste of the required consistency.

We have thus endeavored minutely to describe our method of treating exposed pulps when it is desirable to preserve them in as nearly a normal condition as possible. We have capped very many in this way, and with remarkably few exceptions they have proved successful in every respect, having realized our most sanguine expectations. True, we have some failures, as we also have by any other mode of treatment, but our experience is that the percentage of success is far greater by this mode of treatment than by any other, notwithstanding the experience of some of our best operators to the contrary. When, however, a cavity is in such a shape that we cannot get sufficient anchorage for the filling by capping, or when for any other reason it is not expedient to attempt to save the pulp, after allaying the inflammation, we make an application of arsenious acid. We let this remain in the tooth about twenty-four hours, and then remove it, and the devitalized pulp, or so much of it as we can, without inflicting too much pain. We usually treat some time with antiseptics after we have removed all the pulp, and then fill the end of the root, say about two-thirds full, with gold daubed over with a paste of oxychloride, and at a future sitting, a week or ten days following, we insert the remainder of the filling, providing the tooth has during this time remained perfectly comfortable.

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# DENTAL ANOMALIES.

BY GEO. T. BARKER, D.D.S.,

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(Continued from page 588 )

## FISTULA FROM AN ABSCESS ARISING FROM A RUDIMENTARY DENS SAPIENTIÆ.

MR. M., a young gentleman of twenty-five years of age, apparently in good health, presented for treatment. He stated that about five years before he had suffered with a swollen face; that, after a few days, discharge of the swelling occurred at a point on the cheek about opposite the root of the first right lower canine tooth; that since that time the discharge had been nearly continuous, compelling him to wear constantly an unsightly patch upon his face, but which failed to keep the pus from dropping from the fistulous opening, thus unfitting him for business or social enjoyments. He further stated that a number of surgeons in Cuba had attempted to cure him, but all had failed; that it had been repeatedly lanced, and efforts made to establish adhesion externally, and to cause the pus to discharge internally into the mouth, but they were all unsuccessful. Externally the effects of repeated lancing were abundantly shown, as a large, unsightly cicatrix extended from the first point of discharge, viz., opposite the right lower canine, to a point opposite the posterior root of the first right lower molar, where the fistula was now located. Surrounding the fistula and along the line of the cicatrix was a mass of organized lymph, red and unsightly, and constituting a *cloaca* at the external orifice, while adhesive bands along this line held the muscular tissue and fascia so tightly against the inferior maxilla that he had the appearance of constantly sucking the cheek into the mouth.

*Diagnosis.*—A careful examination was made of the mouth as had been done by others, but no dead teeth, or pulps, or teeth diseased, could be discovered, all being apparently healthy in the oral cavity. I, however, noticed that the left lower dens sapientiæ was in position, though but a small tooth, resembling in appearance a deciduous canine, while the one on the opposite side was absent, and he had no recollection that it had ever erupted. I could neither see or feel any trace of it at the angle of the jaw, or any enlargement in the neighborhood. With a silver probe introduced into the sinus, I could detect some dead bone at a point posterior to the second right lower molar, which was in position. My diagnosis was, therefore, that the cause of the trouble was an abscess induced by the right lower wisdom tooth, which had not yet erupted.

*Treatment.*—Placed the patient under the influence of ether, and cut away the gum and alveolus posterior to the second molar; then exposed and removed a rudimentary wisdom tooth which was the cause of the trouble. This tooth was a remarkable one, as it was deformed and much smaller than its fellow of the opposite side, while surrounding it was a bony covering, partially inclosing it, like a shell to a filbert-nut. Attached to this osseous mass was a large abscess which discharged its pus through the fistula. The cavity left after extraction was treated by painting the parts with tinct. of iodine, as a stimulant to healthy inflammation, and a pledget of lint saturated with this agent was allowed to remain for a day or two to keep the wound patulous. The sinus was treated as follows: a solution of iodine and carbolic acid (White's preparation) was injected, and a pledget of lint saturated with the solution was allowed to remain; each day, however, changing the lint until adhesions had taken place along the tract of the sinus. After a few days all suppuration had ceased, and with the exception of the cicatrix, *cloaca*, and deep "dimple" on the cheek, no trace was left of the abscess and fistula. To get rid of these unsightly objects, I took a delicate lance, inserted it at the first point of discharge, passing it backward and downward, severing the ligamentous bands, which prevented the normal action of the cheek muscles. The cicatrix and *cloaca* were then dissected out, the parts being held together by delicate adhesive bands. Immediate union of the parts occurred, and with the exception of a slight scar no evidence is left of the fistula. The abscess internally was obliterated by the extraction of the rudimentary wisdom tooth and the subsequent treatment.

## Necrosis of the External Antral Wall.

Mr. W., a strong young man, twenty years of age, presented for treatment. He stated that a year previous he had been kicked by a horse on the right cheek, making a serious wound. After a few days the separated parts united, and he thought no more of the accident. In two or three months, however, pain and swelling commenced in the right antrum, accompanied with discharge of pus from the right nostril and at two or three points on the antral wall over the molar teeth. The discharge continued, but the pain had ceased some time before presenting for treatment. The cheek at this time was greatly swollen, while pressure on the bony walls revealed the fact that they were movable and friable. On examining the mouth, the maxillary bone and alveoli over the molars was found to be movable, while several fistulæ allowed the escape of ill-conditioned pus. The teeth on that side were pushed out of position, and there was a prominent enlargement of the right antral floor, which could be seen in the roof of the mouth.

*Diagnosis.*—Necrosis of the right antral wall, the sequence of the blow on the side of the face, which had primarily established inflammation, which run into suppuration of the lining membrane of the antrum, which had, by interference with nutrition, secondarily involved the periosteum, and lastly, the bony parietes, establishing necrosis.

*Treatment.*—The loose pieces of bone, *sequestra*, were removed, and stimulant injections, consisting of weak solutions of aromatic sulphuric acid, iodine and carbolic acid (White's), and the wine of opium, were, each day, alternately introduced. I also procured for him a syringe, and had him wash out the antral cavity two or three times daily with a solution of cider vinegar, and to which I would call particular attention. I was the first to use it for this purpose, and it has proved eminently valuable in my hands for many years in the treatment of almost all antral affections. I commence its use in the proportion of one part of cider vinegar to eight parts of water, gradually increasing it until the patient can have it injected pure. This agent possesses both stimulant and detergent properties, and it appears to act most happily on the Schneiderian mucous membrane, as it changes it when inflamed, and suppurating, from a pus-secreting to a plasm-producing surface, thus favoring a rapid return to health.

*Remarks.*—In the treatment of this case much time was consumed, probably six months, before a cure was effected; but this usually occurs with most antrum diseases. One thing is imperative, and that is perfect cleanliness of the parts, allowing free exit for contained secretions. It is also requisite that no single remedy should be used for a considerable period, or too frequently, and the stimulant solutions should be mild and bland. I have seen serious injury result from the injection of strong solutions of nitrate of silver, acetate of zinc, or sulphate of copper. If these are used, the solutions should not contain at the commencement more than one or two grains of the agent to the fluidounce of water. In cases of necrosis it is not always necessary to wait for nature to throw off the sequestrum, though usually this may be considered the safest practice.

The following case can hardly be called a dental anomaly. Yet such accidents so frequently occur where persons attempt to cure their own toothache, that I am induced to report it.

### EXTENSIVE ULCERATION, THE RESULT OF BURNING WITH CREASOTE.

In June last a young student of dentistry brought to my office a patient suffering with extensive ulceration, located at the angle of the mouth, extending over the lip and involving the cheek. He stated that in introducing creasote into a tooth, some days previous, he had unfortunately dropped a portion on the parts so highly inflamed. The lady said that soon after the accident severe burning pain commenced in the parts, inflammation and ulceration supervening, and that it was daily extending, so that with difficulty could she open her mouth. The following treatment was adopted, viz., keeping the inflamed parts well covered with the following preparation:

℞.—Zinci Carbonas (pure), ʒiss;
Adeps (benzoated), ℥iss. M.

In a few days the ulcer granulated and cicatrized under the above simple treatment.

(To be continued.)

## PREVENTION OF DECAY OF THE TEETH.

BY O. A. JARVIS, M.D.S., NEW YORK.

THIS is the most important and pressing subject to which the attention of the dentist can at present be called. The plan of prevention, arrest, and removal of proximate decay, as set forth in the March and August numbers of the DENTAL COSMOS, I am so well pleased with, and have so much faith in, that I shall continue to advocate and urge its general adoption with all the energy I possess. I don't know how to present the case more clearly than it is done in the August number of the DENTAL COSMOS. Yet by answering some seeming inquiries, some minds may comprehend what they would not otherwise.

My distinctive proposition is to enlarge the space and polish the surfaces at the cervix.

Now the reasons for doing this. First. Those surfaces *need* polishing, as may be seen by an examination in or out of the mouth. By the crown-cutting plan, if I apprehend it rightly, they are not touched at all. *Why* do they need it? Because of imperfect structure and unhealthy surroundings, as a result of our *un*natural and artificial modes of living.

Second. Sufficient *space* facilitates the removal and change of the contents of those spaces. The toothpick, the suction of the tongue, the lateral pressure of soft food, will readily do this. The gum still has the protection of an overhanging crown, and the owner has the crown to use.

It is "natural" for every tooth to have a crown. The crown is a distinctive feature, according to the plan of the "original Artist." But it is *not* a distinctive feature that the space at the cervix should be larger or smaller; and we may have the space without destroying, but rather tending to a uniformity of "type." We are thus "in harmony with nature," and all other parties, even our clerical friend. (It is painful to see what painful struggling there has been over this.)

To restate the case. I propose, when the space between the necks of the teeth is large enough for the passage of pick, tape, food, to make an obtuse angle, in place of the acute angle almost invariably found there, and polish the entire surface. When the space is not sufficient I will make it so, leaving it as above described.

One writer doubts its being done as easy as cutting away the crown. Take one of those thin, tapering files, flat on the blind and convex on the cutting surface; grind from one edge to the center, and it will pass between the teeth, as we generally find them, almost as readily as a toothpick. In some tight, close cases a wedge may be used, which need be but for a moment, and at the point of contact. And again: a passage may be made with a fine bur, round or elongated, or a square drill, even though not larger than a hair or nerve-needle, driven by an engine. Finish the forming of course with the files. After once getting in there, you will be glad you have seen the spot, and as you smooth that uneven surface, remove that softened material, or cut out that discolored portion, leaving a polished passage-way, which you *know cannot become obstructed,* and you have done no harm to form or feature, nor even, as a general thing, caused the gum to bleed, you will realize a joy never before experienced in all the round of dental operations.

The same writer expresses a doubt as to the applicability of this plan to a certain class of teeth. If I should find such as he seems to intimate, with a broad surface in actual contact, I should lessen it from any and perhaps all directions. He also says, "It is a novel view," in regard to the importance of the lingual surfaces of the incisors, "for triturating purposes."

The very form of these surfaces affords sufficient evidence, to my mind, that they are very important. Here is an old dentist who says he has no other surfaces on which to triturate. How wise and beautiful the arrangement of an unbroken wall at that particular part of the circle for triturating purposes, to protect the gums, and to prevent the food from being forced by *direct* pressure between the teeth under the upper lip! Remove it only when it is the *least* evil. Its removal is a great deformity.

Another writer seems to ask as to the proper procedure when the teeth are naturally apart. Well, I should probably let them be so, especially if I liked it. He also wants to know why they do not sway to and fro in response to the pressure of mastication. Probably because they have their heads on, natural, and come *squarely* up to their work. But if there is a slope upon the crown, the tooth would *slope* off to one side. This I perceive to be a novel idea to a professor of dental mechanics.

I believe I have now answered every seeming inquiry which I have seen in the correspondence on this subject save one, and that is about that class of bicuspids where Dr. Bogue thinks I did not "mean to say" what I did, and probably where Dr. Arthur thinks I am not "uniformly clear." I do not mean the "consumptive" tooth at all, but just the ones I described, and the most beautiful and best-formed tooth we ever see. I referred to them for the purpose of showing two facts as I understand them. First, that we find in these teeth the very conditions Dr. Arthur seems to aim to secure, viz., a large crown V and a large lingual V, the teeth touching but slightly, and only between the buccal cusps. So I understand his drawings and explanations. Now for the second fact, which is, still they decay. The conclusion is that the means do not secure the end desired. The discoloration or decay is at the acute angle, which retains and clogs. I propose to make it obtuse.

## THE INFLUENCE OF THE NERVOUS SYSTEM ON THE HEALTH OF THE TEETH AND MOUTH.

BY JACOB L. WILLIAMS, M.D., BOSTON, MASS.

For some years I have been much interested in noticing the conditions of the nervous system in connection with health or disease in the mouths of persons coming under my professional observation, and I will, as briefly as possible, state some conclusions arrived at from such observations.

We are well aware that there are various degrees of nervous activity or restlessness, as well as weakness, also strength or tranquillity, not only in different individuals, but frequently in the same individual at different times.

We also know that the health of the teeth and mouth varies in different persons, as well as in the same person at different times. Let us look at the extremes of each.

In regard to various mouths, they may be considered, chemically, as in two classes, the alkaline and the acid. I allude to the general character of the fluids of the mouth, without reference to any diversity that may sometimes be found in its various secretions.

In the alkaline mouth we generally see teeth of dense structure, and not easily affected by what are considered injurious agents, and only so affected when such agents find very obscure lurking-places for some length of time. In this mouth the general character of its secretions is so decidedly alkaline that they act as a constant and effective neutralizing agent to any acid influence within their reach, so that we sometimes see what is called a "strong set of teeth," notwithstanding they may have little or no personal care.

On the other hand, we find, in the acid mouth, that the teeth, though, perhaps, not always originally less dense in structure, are more easily affected by acid elements taken into, as well as readily developed in, the mouth; and, in some cases, the acid action of the *secretions* is so positive and continuous that the teeth are attacked at points not really obscure, and seem to melt away, as has been said, "like lumps of sugar in a cup of tea."

Now, if we observe, we shall find, existing with these two extremes of condition in the teeth and mouth, corresponding extremes in the condition of the nervous system, which may be classed as tranquil or strong, and restless or active (or weak).

In the tranquil we find sufficient strength of nerve-power to take the individual along in life with a comfortable feeling of reserved strength, usually attended by good digestion.

The nervous system may be constitutionally quiet or strong, or even stolid, or there may be such freedom from continued care or close application that the nervous power is not actually tasked or overdrawn.

But, in the restless or active condition, we see, perhaps, a constitutional disposition to activity of mind or body, or both; or else a state of health, or a continued pressure of circumstances that draws so unremittingly on the stock of nerve-power that there is not sufficient opportunity to acquire a proper reserve of that power, often resulting in various uncomfortable sensations, and not unfrequently attended by dyspepsia.

Besides some states of health and local conditions in the human organization that are known to produce this unsettled state of the nervous system, there are various other causes, some of which, perhaps, are necessary attendants on our civilization, that, no doubt, contribute most largely to its very general existence. Such are the constant cares and anxieties of business, social and domestic life, and the strong and continued pressure, through ambition or otherwise, imposed on the energies of growing youth during a large part of the year; and we daily see the effect of the various causes of overwork, as shown by their results in the mouths of patients.

My conclusions are, that where the nervous power is *not* unduly active or overdrawn, as a rule, the digestive system will be in such condition that the general character of the secretions of the mouth will be alkaline and corrective of acidity, the most common cause of destruction of the teeth.

And, on the other hand, that, where the nervous system *is* unduly active, or its powers overtasked for a length of time, we may expect to find the fluids of the mouth tending to an acid character in proportion to such overdraft.

Also, to reverse the rule, wherever we find the teeth strong, and slow to decay, we may diagnose a general tranquillity of nerve; and wherever there is rapid caries of the teeth, of a white and acid character, we may be equally sure that the nervous system is or has been for some time overtasked.

Of course, in practice we see all degrees between the extremes I have mentioned; but I am satisfied that their proportions will be found to correspond, if close observation be given.

These conditions may exist, under favoring circumstances, for a large part of one's lifetime, or they may vary at different periods of life and under different circumstances, so that we sometimes see a mouth in which the teeth have always been strong; but how much oftener do we see the contrary, or variations in the health of the teeth, from the time of their growth to adult age of the individual, and, frequently, afterwards.

In general terms, then, the result of these observations has been to prove (other things being equal) that so far as tranquillity of nerve prevails, so far we may expect soundness of the teeth, and, in proportion as the restless condition exists in continuance, in that degree will there be disease in the mouth.

Much might be said of the various evidences of this rule; and a correct appreciation of it will be found of great utility in enabling us to decide when and how to attempt to save those organs which constitute so important a part of the digestive system, and which, in a sound condition, contribute so much to the health and comfort, the happiness and comeliness, of the human race.

# PROCEEDINGS OF DENTAL SOCIETIES.

## MICHIGAN STATE DENTAL ASSOCIATION.

This association met at Grand Rapids, Tuesday, October 10th, with Dr. E. S. Holmes in the chair.

There not being a quorum present, an informal discussion took place on the subject of extracting teeth, in which the strongest grounds were taken against the operation except as a last resort. Several members maintained that all remaining fangs should be rendered healthy and useful as far as possible.

On the day following the President read an address of welcome.

New members were admitted, as follows: Drs. L. N. Hutchinson, of Big Rapids; J. D. Smith, of Union City; J. H. Woolley, of Coldwater; E. P. Cummings, of South Haven.

Dr. Watling, Chairman of the Committee on Anatomy, made a verbal report, urging the necessity of thoroughness in this department. He contended that a knowledge of the tissues operated upon, their normal and abnormal states, their origin and development, should precede practice; that a knowledge of the dental tissues alone is insufficient. The student should be familiar with all the structures and functions of the human system; that nothing in the profession is more reprehensible than the ignorance of anatomy and histology exhibited by some of its members.

Dr. Hutchinson made some remarks concerning a new preparation of phosphate of lime which had been prepared by Dr. King, of Kalamazoo.

Dr. Bannister read a paper by Dr. King on the subject of "Phosphate of Lime in its Application to Diseased States of the Dental and Osseous Tissues," showing the promptness with which the lime salts will alleviate certain kinds of dyspepsia depending on irritation of the mucous membrane. He believed that these irritations of the mucous membrane are often extended to the periosteum of the teeth and to the pulp membrane, and in this way a disease of the nutritive system may extend itself to the dental organs, and cause their destruction. He believed that the phosphate of lime not only allays irritation of the mucous membrane of the stomach, but promptly removes those secondary effects which sometimes prove so troublesome in the alveolo-dental membrane. Dr. King's method of preparing phosphate of lime is designed to furnish this substance in a state of extreme division. A considerable portion of pure sugar of milk is thoroughly triturated with a smaller quantity of phosphate of lime, and the whole made up into lozenges, as the most convenient form for administration.

Dr. Davis could not understand how mineral substances could be assimilated unless first organized in the vegetable. Huxley teaches that all matter must take the form of protoplasm before it can serve as nutrition in the animal organism. Huxley's position does not, however, accord with the fact that benefit is derived from the use of mineral water.

Dr. Hutchinson suggested that the benefit derived from mineral waters is no proof that their mineral ingredients are assimilated.

Dr. Douglas thinks that mineral phosphate of lime may modify states of health dynamically without being assimilated.

There being no report ready from the Committee on Pathology, Dr. Hawxhurst made some remarks on the nature and origin of pathological action. He accepted the view that all vital action originates in the cell; that in order to know much about it we must study it in the cell; that disease, too, which is merely a modified vital action, is first manifested in the cell; that morbid conditions can never be understood without referring them to pathological states in the ultimate cell; and that the dental student, as soon as he has acquainted himself with the more obvious facts relating to animal tissues, should study their microscopic character; should study the career of the cell, its physiology and pathology. He maintained that disease must have progressed far before it can become visible in the tissues to the unassisted eye, and that by consequence the microscope may reveal disease long before it has become a source of discomfort to the patient. He urged the necessity of a profound acquaintance with normal vital action as a basis on which to study all departures from the normal standard.

Dr. Douglas, in reply to a question, whether he had found hamamelis Virginica as useful in controlling dental hemorrhage as his former experience detailed to the association had led him to expect, stated that it had been uniformly efficient in his hands in the control of alveolar hemorrhage. He uses the officinal tincture applied on a twist of cotton directly to the part. In bad cases he gives it internally in doses from one to sixty drops, and awaits its effect with perfect confidence.

Dr. Dort plugs the alveolar cavity with sponge, and with this simple remedy is uniformly successful in arresting hemorrhage; thinks the elasticity of the sponge contributes to the tightness of the plug

The discussion having turned upon cleaning teeth as a remedy for sensitive dentine, Dr. Dort called attention to the corroding effect of rancid butter; the butyric acid attacking dentine by action upon its lime salts.

Dr. Douglas concurred in this, and stated that the acid originating in a dyspeptic stomach might often effect decomposition of exposed dentine. This action might prove very destructive if prolonged over a period of several years. In his own case he had found common salt a remedy for this condition, and finds it much more effective than alkalies. Takes a pinch of salt into the mouth after the meal is over and gradually dissolves and swallows it. He commenced this treatment a year ago, and has enjoyed excellent health ever since. The parotid gland always discharges an acid saliva in conjunction with an acid state of the stomach. He finds two drachms of salt, more or less, a perfect remedy.

Dr. J. J. Robbins described a case in which the permanent lower central incisors were erupted at the fortieth month. In answer to a question, he stated that he believed the excessive use of mercury as a medicine might produce deleterious effects in the next generation of children.

A discussion followed in regard to the effect of mercurial vapor upon an exposed nerve. It was claimed that it would result in its speedy destruction.

Dr. Cummings asked for some hints concerning the treatment of diseased gums. In the discussion which followed, it was assumed that drugs are less important in the treatment than cleanliness; that the use of chloride of zinc, iodine, calendula, aconite, carbolic acid, etc., will prove satisfactory, provided that the necks of the teeth are kept absolutely free from foreign matters, but that cleanliness alone will accomplish the same result in most cases; that the curative influence of drugs often lies in the cleansing treatment preparatory to their exhibition.

Dr. Hawxhurst desired to call out an expression in regard to cases in which the pulp has been long dead in a sealed canal without abscess.

Dr. Douglas cleanses the canal in these cases and fills at once; if soreness results, gives mercurius vivus, and repeats the dose until the inflammation subsides. He has not had a case go on to suppuration during the last five years; finds those cases in which the abscess has already appeared and become chronic more irritable than those in which the pulp-chamber has been long sealed with the remains of a pulp in it. He has a great deal of faith in mercurius vivus as a local remedy in these cases.

Dr. Watling asked if Dr. Douglas had ever attempted to produce an alveolar abscess by giving mercurius vivus. If it would do this administered in large doses, he thinks he would believe that it would cure the same, given in homeopathic doses.

Dr. Watling says that ninety cases in a hundred will be cured by a little counter-irritation with saturate solution of iodine in creasote, or a little antiphlogistic treatment, with blue pills or a cathartic. He invited homeopathists to find a refuge with him in a substantial system of medication, which years of practice had proved to be both safe and efficacious.

Dr. Douglas described a new method of extracting the fang of a tooth when broken deep into the jaw, by cutting an annealed steel instrument with a screw plate to fit the drilled canal of the fang. After inserting the instrument the fang may be extracted with more certainty and less pain than by any other method with which he is familiar.

Dr. Smith, during a discussion concerning the merits of Guillois's cement, stated that it was similar to all other bone fillings, except that it hardens much more slowly, and is, perhaps, a trifle more dense. He has seen os-artificiel endure in one mouth four years with no more wearing away than we should look for in a tin filling; in another case it was entirely gone in two months. He does not regard it as likely to fulfill the requirements of a permanent filling, as some gentlemen in the profession have seemed to hope.

Dr. Stone says that he has entirely revolutionized his mode of practice; is using smooth points almost entirely for packing gold; believes that he can make a more solid filling and finish about the borders with less danger of breaking them, and has less dressing to do after the gold is all packed, for in fact the filling is finished all the time from the very start. He had had this question of smooth points introduced to him by Dr. Bannister, and believed they were destined to replace entirely the old serrated instruments. He believed that we used, in general, too many instruments. A few simple ones are all that are necessary for ordinary practice.

Dr. Smith, in annealing gold, regards passing it through the flame as the only method certain to remove all its impurities. Often a puff of white smoke or vapor, quite visible to the naked eye, will pass from the gold as it enters the point of greatest heat. The best operators have discarded the annealing tray, and are using the simple flame.

Dr. Barker stated that he had been in the habit of using smooth points, for many years, in conjunction with the common serrated points. He prefers them very much for filling retaining-pits, remarking the fact that the pit need not be so deep. He makes his smooth points by filing away the serrations from common pluggers after drawing the temper; then carefully retempers, and considers them fit for use.

Dr. E. S. Holmes stated that he had used smooth points during some months, and that he was highly pleased with his results.

Dr. Trempler read a paper on "Dental Education."

Jackson was chosen for the place of the next annual meeting.

The officers elected for the ensuing year were as follows:

*President.*—George W. Stone.

*Vice-President.*—George H. Mosher.

*Secretary.*—D. C. Hawxhurst.

*Treasurer.*—D. W. Smith.

*Censor.*—J. A. Watling.

The following standing committees were appointed:

*Anatomy.*—J. A. Watling, Woodward Owen, E. Hunter.

*Physiology.*—C. E. Corbin, F. W. Clawson, M. H. Knapp.

*Chemistry.*—D. C. Hawxhurst, J. S. Vaughan, M. C. Dorrance.

*Hygiene.*—G. P. Holmes, E. P. Cummings, J. W. Woolley.

*Pathology.*—D. W. Smith, G. H. Mosher, H. C. Phillips.

*Therapeutics.*—J. Douglas, J. W. Storm, E. G. Douglas.

*Surgery.*—B. Bannister, T. R. Perry, J. C. Parker.

*Education.*—G. R. Thomas, E. S. Holmes, R. S. Bancroft.

The next annual meeting of this association will take place at Jackson, November 12th, holding in session three days.

D. C. Hawxhurst, *Secretary.*

# IOWA STATE DENTAL ASSOCIATION.

THE tenth annual session of the Iowa State Dental Association was held at Des Moines, on the 9th, 10th, and 11th of July. A large number were present, including the following, who became members at this session: Drs. A. J. Rederick, of Sioux City; William H. Thrift, of Boonsboro'; Chas. Garretson, of Knoxville; W. H. Barker, of Pella; W. T. Johnston, of Ottumwa; G. W. Fuller, of Des Moines; B. Todd, of Des Moines; P. J. Ellsworth, of Oskaloosa; T. A. Hallett, of Des Moines; P. E. White, of Davenport; C. M. Gaylord, of Mason City; A. Rawson, of Des Moines; G. A. Averill, of Ottumwa.

The essays that were presented evinced, in the highest degree, careful thought upon the part of the essayists, and the members derived much valuable instruction from their reading and the discussions that followed. The essays that were presented and discussed, were as follows: "Theory *vs.* Practice," by Dr. R. S. Rathbun, of Lyons; "Dental Diagnosis and Extraction," by Dr. J. Hardman, of Muscatine; "Treatment of Dental Caries," by Dr. Mann, of Des Moines; "Successful Dentistry," by Dr. W. O. Kulp, of Davenport; "Dental Chemistry," by Dr. E. C. Chase, of Iowa City; "Obscure Causes of Odontalgia," by Dr. Ingersoll, of Keokuk; "Treatment of Exposed Dental Pulps," by Dr. P. T. Smith, of Burlington; "How a Dentist should Treat his Patients," by Dr. I. P. Wilson, of Burlington; "Nitrous Oxide as an Anæsthetic," by Dr. N. H. Tullos, of Iowa City; "Peridentitis and the Peridental Membrane," by Dr. Rederick, of Sioux City.

Dr. Thrift, of Boonsboro', reported the particulars of a case where he had removed the lower wall of the antrum as far forward as the first molar, capping with silver plate, and afterwards the healing over and final adjustment of an artificial denture.

Dr. Hardman offered the following preamble and resolution, which were adopted:

*Whereas*, The time has come that the thorough qualification of students in any of the learned professions is the just demand of the people of any State or community; and

*Whereas*, The evidence now generally recognized by the people, as most reliably showing the qualified claims of the dental physician, is that justly rendered by the legitimate college education and training; and

*Whereas*, The Medical Department of the University of Iowa is now a fixed, successful, and worthy institution of our Commonwealth, greatly enhancing the facilities to professional qualification in an economical way to the medical student; and

*Whereas*, The claims of the dental profession for comparatively equal facilities are self-evident; that while the medical student of Iowa can now with a small outlay procure his instructions and diploma, the dental student is compelled to go abroad at an outlay of five hundred to one thousand dollars; therefore, we, the dentists of Iowa, in convention assembled, do

*Resolve*, That we do pray the honorable the medical faculty and regents of the University, to the end that chairs be added, as follows, viz., one of the institutes of dental science, one of surgical and operative dentistry, and one of mechanical dentistry, with equal privileges with the students of medicine to the lectures of anatomy, of physiology, of chemistry, etc., thus to establish thorough dental college facilities; and that the said dental chairs be supplied with professors by and from out of the twenty State dental associations.

Drs. Tulloss, Hardman, and Chase were appointed as a committee to carry out the purposes of the resolutions.

The society proceeded to the election of officers, with the following result:

*President.*—Dr. L. C. Ingersoll, of Keokuk.

*Vice-President.*—Dr. M. L. Jackson, of Oskaloosa.

*Recording Secretary* and *Treasurer.*—Dr. P. E. White, of Davenport.

*Corresponding Secretary.*—Dr. A. J. Rederick, of Sioux City.

The President appointed the following Standing Committees:

*Executive Committee*—Drs. W. O. Kulp, I. P. Wilson, J. Hardman.

*Publishing Committee.*—Drs. E. C. Chase, P. E. White, J. S. Kulp.

*Committee on Membership.*—Drs. J. Hardman, N. H. Tulloss, P. T. Smith.

The next meeting of the association is to be held at Davenport, on the second Tuesday in May, 1873. The Executive Committee were authorized to make arrangements for a joint meeting with the Illinois State Dental Association, which is to be held at Rock Island, Illinois, at the same time.

P. E. White, *Recording Secretary.*

## BROOKLYN DENTAL SOCIETY.

The fifth annual meeting of the Brooklyn Dental Society was held on Monday evening, October 7th, 1872, the President, A. H. Brockway, in the chair.

After the usual preliminary and general business, the association proceeded to the election of officers for the ensuing year, with the following result:

*President.*—William Jarvie, Jr.

*Vice-President.*—A. N. Chapman.

*Recording Secretary.*—C. P. Crandell.

*Corresponding Secretary.*—C. A. Marvin.

*Treasurer.*—J. H. Race.

*Librarian.*—O. E. Hill.

The affairs of the society were shown to be in a prosperous condition.

The Dental Infirmary, so recently established by the society, is no longer an experiment, but a pronounced success. Much interest has been manifested in the clinics at the Infirmary, many of which have been most instructive.

The thanks of the society were tendered to Dr. W. H. Atkinson for the valuable services rendered by him in clinics the past year.

The meeting was one of interest and pleasure.

C. P. Crandell, *Recording Secretary.*

# EDITORIAL.

## REPORT OF THE AMERICAN DENTAL ASSOCIATION.—PERSONAL EXPLANATION.

In the Dental Cosmos for November, in the report of the discussion on "Dental Education," before the American Dental Association, Dr. Frank Abbott is reported to have said as follows: "Every college granted honorary degrees, and, as far as his was concerned, they had not varied from the general custom in this regard."

Dr. Abbott denies the correctness of this report, and claims to have said: "The New York College of Dentistry has never, since its organization, conferred the degree of D.D.S. upon any man who has not fulfilled the requirements of the college in every particular, as published in our annual announcement under the heading of 'Requisites for Graduation.' I presume every dentist in the room has received a copy of that announcement, and knows what those requisites are."

We give place with pleasure to Dr. Abbott's correction, and regret that the reporter should have misapprehended his remarks. In this connection, it may not be amiss to state that the report was furnished by a reporter engaged for the purpose, who, not being a dentist, or connected with any dental college, was doubtless free from any bias, and any errors occurring in the report may be safely set down to have been made inadvertently.

## DEFERRED MATTER.

Editorials, communications, reports, and other matter in type, and intended for this number, have been unavoidably crowded out. With hearty thanks to contributors, we are compelled to ask their indulgence.

# PUBLISHER'S NOTICE.

## CLOSE OF THE VOLUME.

This number of the Dental Cosmos completes the fourteenth volume, and fills our engagement to those who have subscribed for it.

The first number of the fifteenth volume will be published January 1st, 1873, and succeeding numbers on the first of each month following.

We shall adhere to the system of cash payment in advance, experience having proven it to be the only satisfactory arrangement.

With this number we send bills to those whose subscriptions have expired, and request that all who desire to renew them will oblige us by doing so promptly, that we may determine the number of copies to print, and that those who wish to secure complete files of the journal may be able to do so.

We solicit the continued favors of the profession, not only in subscriptions, but in contributions to the pages of the magazine, that its usefulness may be enhanced, and that it may be made more efficient in the general enlightenment and in the promotion of the best interests of the specialty of dentistry.

The editorship of the journal, though impersonal during the present volume, has been under the supervision of Dr. J. W. White, who will continue in charge.

Samuel S. White.

# BIBLIOGRAPHICAL.

The Physician's Visiting List for 1873. Philadelphia: Lindsay & Blakiston.

This little pocket companion has been regularly issued for twenty-two years, and is too well known to need description. It is admirably adapted to the needs of the physician.

Dentists' Pocket Diary and Appointment Book. Philadelphia: Samuel S. White.

This is a convenient office or pocket companion for registering appointments for dental operations, ruled to allow for ten appointments for each day in the year, and, being without date, is good for any time.

# CORRESPONDENCE.

London, October 26th, 1872.

In the periodical letters which I propose writing you from London, it is my intention to keep your readers well informed upon all such English dental topics as are of real interest in the United States. Your own pages prove that the interest which American dentists take in all foreign professional movements is very great; but in order to keep themselves thoroughly conversant with these subjects it is often necessary to wade through a mass of matter as it arrives in the bulky journals; and for this task few engaged in active practice can possibly spare the time. A special correspondent, knowing the requirements of his readers, and in his daily life obtaining without effort the information which they demand, is able to compress into a few pages the *essence* of the subjects, and so to keep even the busiest practitioner, who can afford but a glance at periodical literature, thoroughly *au courant* with them. The Transactions of the Odontological Society of Great Britain suggest an instance in point. These transactions, as your readers are doubtless aware, are now regularly published in monthly parts during the session of the society. They contain "the paper" of each meeting, and an almost verbatim report of the discussions. Much of this is really valuable as scientific and practical contribution to dental literature, but forms altogether so large an annual volume that I am not surprised to notice that apparently few in the United States attempt to sift the wheat from its chaff. This task I shall endeavor in my letters to perform for your readers.

Perhaps the most important paper read before the Society during the past session was one by Mr. Chas. S. Tomes, on the "Chemical and Physical Properties of Amalgams." This paper is a model of what such contributions should be. It is a narrative of thoroughly scientific experiment directed towards an equally practical result. Mr. Tomes clearly demonstrated an important fact, namely, that all amalgams contract in hardening. The plan he pursued was that by which specific gravities are taken. The specific weight of a mass of newly-mixed amalgam was taken, and this was repeated when the mass had hardened. A simple calculation sufficed to show what change in bulk had occurred. In every specimen, contraction, indicated by an increase of weight when weighed in water, took place during hardening, and this contraction was in no infinitesimal quantity, but in one instance was as great as 1·45th of the whole bulk of the mass. Seeing that such contraction, taking place after the completion of the filling, must result in the formation of a minute fissure all round the plug, we need look no further for an explanation of the short durability of amalgam fillings. The comparative contraction of palladium, equal parts of tin and silver, and of Sullivan's cement, is represented by the figures ·037, ·38, ·07. So that practical experience is right in giving to Sullivan's copper amalgam a high place as a filling, since, compared with other amalgams, its contraction is insignificant. Among other important papers of the session, may be mentioned one by Mr. Oakley Coles, "On the Production of Articulate Sound" (speech), and one by the distinguished metallurgist, Mr. Makins, "On the Welding of Metals,"—an important contribution towards the *rationale* of gold filling. Space forbids one to analyze at length these papers; but I may add that they are published for the Society by Wyman, Great Queen Street, London. The next session of the Society opens on November 4th. In January the new officers are elected; it is believed that Mr. Edwin Sercombe is to be the President.

Speaking of the Odontological Society reminds me of Dr. Arthur, of Baltimore, a corresponding member, whose book on the "Prevention and Treatment of Decay of the Teeth" has caused a good deal of talk among the members. The lengthy notice of this book in the *Monthly Review of Dental Surgery* for September reflects, I think, pretty well the feeling of the profession here. The scientific value of the book is considered trifling; whilst the mass of irrelevant matter surrounding it, and the fact that the work is addressed, on what are considered altogether insufficient grounds, to the public, have given rise to much comment not altogether flattering to Dr. Arthur.

I see you have noticed the *Monthly Review* in the DENTAL COSMOS. It strikes one that your readers may imagine that Mr. Francis, the publisher, is also the editor. Mr. Francis is a publisher only. The *Review* is edited anonymously.

Among other literary novelties, I may mention that Mr. Chas. S. Tomes is engaged upon a second edition of his father's well-known "System of Dental Surgery." A paper which is expected with interest is also promised from this gentleman in the November number of the *Monthly Review*, on a subject of Dental Histology. "A Manual of Dental Mechanics," by Mr. Oakley Coles, is announced by Messrs. Churchill. Mr. Christopher Heath's work, "Injuries and Diseases of the Jaws," has reached a second edition. Messrs. Asher, of Berlin, advertise "Irregularität und Krankheiten der Zähne," Deutsch von Dr. A. Kühner, —a translation of some papers by Mr. Henry Sewill, published originally in the *Lancet*.

During the past year the standard of examination for our English dental diploma has been considerably raised. In addition to *viva voce* examinations on anatomy, physiology, surgery, and the usual dental subjects, candidates are now required also to pass a written examination. Looking at the length of the well-arranged curriculum through which candidates have to pass before admission to this examination, it must be admitted that the science in dental surgery of the Royal College of Surgeons will compare favorably with a like degree of any similar institution.

The following case illustrates once more the extreme danger of administering anæsthetics to women without the presence of a witness. Mr. Jas. T. Grant, dentist, was charged at the Jersey (Channel Islands) police court, on October 8th, with an indecent assault upon Caroline Pope, a servant. She states that the prisoner gave her "gas" to extract a tooth without pain, and whilst she was in a semi-conscious state he grossly outraged her. Some evidence was offered to corroborate circumstantially this statement. For the defence, medical men stated that delusions were commonly excited in some patients by anæsthetics, and it was contended that this was the case in the present instance. There was no evidence of a rape having been attempted. Many witnesses were brought forward who gave Mr. Grant the highest moral character. In the end he was committed for trial on the charge of indecent assault, and was admitted to bail in the sum of £250. I will send you an account of the trial in a future letter.

# PERISCOPE.

Resections of the Maxillary Bones without External Incision.—There is perhaps no part of the osseous system that is more prone to take on pathological conditions than the maxillary bones. This may be accounted for by their great vascularity and numerous sources of irritation, especially by diseased teeth. When these conditions occur, there are few points in surgery that require more careful judgment and skill to get at a correct diagnosis and treatment.

The earliest successful attempt at removal of a portion of the superior maxillary for a tumor was made by Akoluthus, a surgeon of Breslau, in 1693. Following him in the last century were Desault, Garengeot, Jourdain, White, and others.

So far as known, the first resection of the entire superior maxillary was made in 1820, by Dr. Jameson, an American surgeon.

Four years later (1824) Dr. David Rodgers, of New York, performed the same operation.

In 1826, Prof. Lizars, of Edinburgh, showed anatomically how it could be possible to remove the entire superior maxillary, and in December, 1827, carried his proposition into effect. There was so much hemorrhage that the operation was discontinued, notwithstanding the carotid was ligated. In May, this same year, M. Gensoul, of Lyons, removed the entire maxillary bone for a boy seventeen years of age.

These operators were soon followed by Syme, Mott, Fergusson, Dieffenbach, and others.

From this time the operation became an established one in surgery.

Sir William Fergusson made some valuable modifications, by making the median external incision, thus producing less disfiguration of the face.

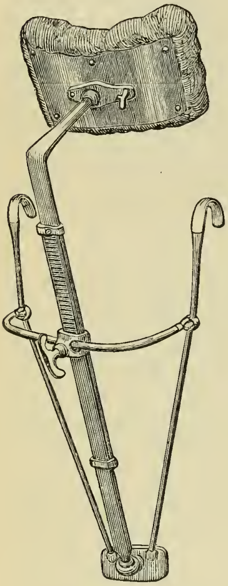
This certainly was a step in the right direction, as heretofore very little attention was given to it.

The first operation on the lower jaw is reported to have been performed by Anthony White in 1804; in 1812 by Dupuytren; 1821 by Mott and Graefe; in 1824 by Sir P. Crampton; and at present the operation is quite common.

It is not my purpose at this present time to give a description of the many diseases that involve the maxillary bones, or of the several operations for their removal, but to present in the following cases a method of treatment by extirpation without external incision.

In the operations within the mouth much of the success depends on the dexterous use of a few efficient instruments, and, in order to make the following operations intelligible, it may be necessary in the outset to describe the most important instruments used.

FIG. 1.



It is quite desirable to perform all these operations in an operating-chair with a suitable head-rest. This may not at all times be convenient to have, but I consider it extremely necessary to have a head-rest. The necessity of this will be seen when the position of the surgeon in performing these operations is considered.

Fig. 1 represents a portable head-rest (O. C. White's) that can be adapted to almost any chair, or even a table. It has movements in all directions, and can be quickly and securely held in position by turning a single thumb-screw. The head-piece is quite concave, so as to fit and firmly hold the head. It can be folded up so as to occupy but little space for transportation.

Fig. 2 represents a mouth-gag that I have had constructed to keep the mouth open. The two ends are armed with elastic rubber, and the instrument can be made long or short by turning the thumb-screw seen in the middle.

In Fig. 3 is shown a cheek-holder, so made with a long handle that an assistant can use it at a distance, and at any angle.

Fig. 4 shows two periosteum-denuders that are so constructed in shape and size as to denude the periosteum in any case without cutting it, and to reach all positions. A third one is also used similar to the first one (*a*), with only this difference, that the end of the instrument is broader.

FIG. 2.

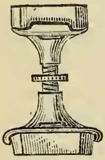


Fig. 5 represents an oral saw that I have devised and used in operations on the maxillary bones. It consists of a handle to which is firmly fixed a U shank to take in the cheek or lip during the operation. On the other extremity of the shank is a square socket to hold saws or knives of different sizes, these being fastened by a thumb-screw. The socket, being square, allows the saw or knife to be turned and cut in four directions. It is only necessary to unscrew the fastening a little in order to turn the saw in the desired direction. The saw being in direct line with the handle can be easily guided. The back of the saw is thin, while the teeth are broad, thus giving it free action.

Among the other instruments necessary are an alveolar lancet, one half-dozen sponge-holders with suitable sponges, and a syringe with a long, curved nozzle, the end pierced with holes, so as to effectually wash out the nasal cavity. Where the soft parts are saved, a long-handled needle, such as is used in vesico-vaginal fistula, will be required, along with some other instruments for twisting silver wire, etc.

Fig. 3.

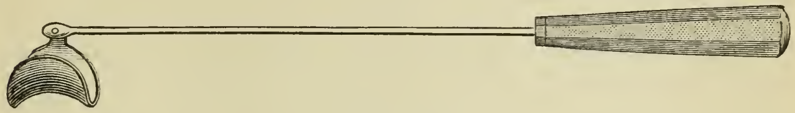


Fig. 4, *a*.

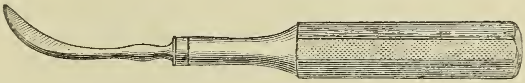


Fig. 4, *b*.

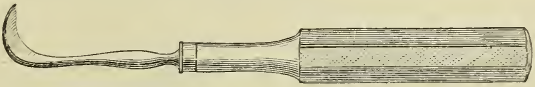
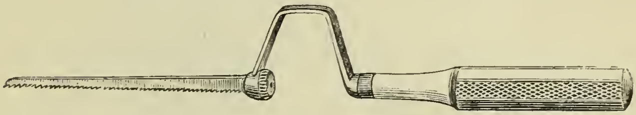


Fig. 5.



Three pairs of small excising forceps for necrosis. It might be well to have cautery irons of two or three sizes at hand. I, however, very seldom use them.

Undoubtedly the best position for the surgeon is to the back and over the head of the patient. The head of the patient should come up to the breast of the operator, where it is better under his control, and he can see all parts of the mouth with a good light, and also be less liable to have the blood thrown on him by the expectorations of the patient. If the surgeon is ambidexter, it facilitates the operation very much ; otherwise he may have to occasionally change positions.

The following cases will be sufficient to illustrate the resection of the superior and inferior maxillaries by a new method. In all these cases the periosteum was saved.

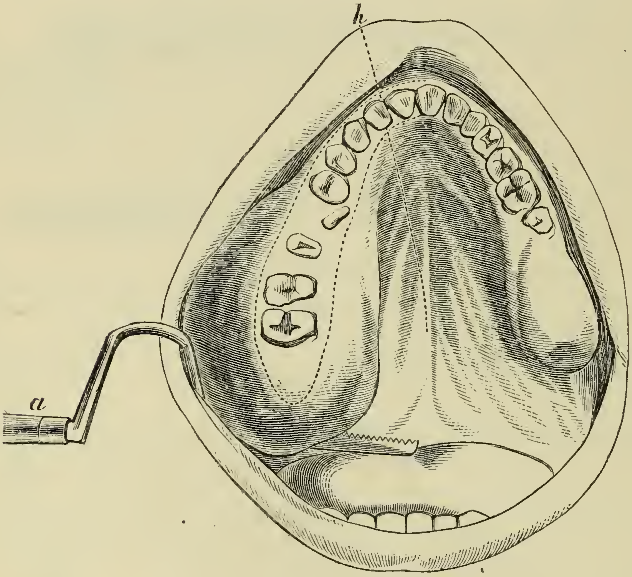
*Osseous Tumor of the Right Superior Maxillary.*—Mrs. B., aged forty-four years, has always enjoyed good health. About six years ago she noticed that the alveolus of the right superior maxillary began to enlarge, and has gradually increased to the present time. In size and shape it very much resembles a hen's-egg, the large end presenting posteriorly. It extends antero-posteriorly from the right superior canine to the internal pterygoid process, laterally from near the centre of the palate to the maxillo-malar fossa, forward to the canine fossa, and to a slight degree into the antrum of Highmore.

The mucous membrane over the surface of the tumor appeared a little lighter in color than normal; this, no doubt, was due to the tension on it by the parts below. In the surface of the tumor could be seen the fangs of the first and second molars. The canine and bicuspids were not decayed. First bicuspid and canine retained their normal position in the jaw, but their crowns were somewhat buried in the tumor. The crown of the second bicuspid could all be seen above the surface of the tumor, but the whole tooth was raised out of its natural position, and thrown inward about one-half an inch. One of the roots of a molar was lying longitudinally in the soft parts on the surface of the tumor.

She has experienced no pain, or discharge from the mouth or nose, during the long period of its growth; from its apparent firm texture, together with the excellent health the patient has always enjoyed, there appeared no doubt of its benignant character.

She desired it removed, as from its great size it gave her much discomfort by preventing mastication, and speech being somewhat impaired.

Fig. 6.



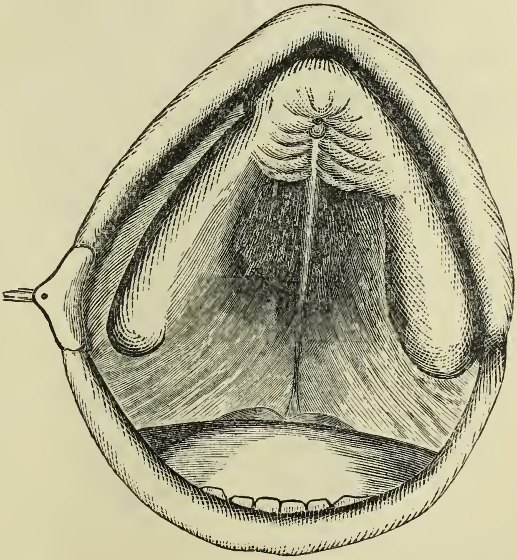
In June last, in presence of Profs. T. M. Markoe, H. B. Sands, W. A. Hammond, H. D. Noyes, A. B. Crosby, and others, the patient was placed in an operating-chair, and, when fully under the anæsthetic, the head was thrown back in position, and the mouth kept open by the gag placed between the back teeth of the opposite side. Taking my position to the back, and over the head of the patient, I placed a sponge cut so as to completely fill up the passage to the throat, and held in position on the soft palate by a sponge-holder to prevent the blood passing into the throat during the first part of the operation. The patient was only allowed to breathe through the nose, which she could well do. No external incision of the face was made.

Two internal incisions were made from behind on the posterior prominence of the tumor, one-half inch on each side of the fangs of the molars forward to the left central incisor (as seen by the dotted lines in Fig. 6). The periosteum was denuded with the periostomes by commencing externally at the left central incisor, and passing backward over the tumor to the internal pterygoid process, and upward to the malar bone; then internally from same point over the tumor on to and a little past the center of the palate. As the large sponge could now be of no further use, it was removed. The tensor-palati muscle was now denuded from its attachment to the posterior part of the hard palate. Care was taken not to injure the posterior palatine vessels and descending palatine nerve that pass at this point forward on to the hard palate through the posterior foramen and along a groove.

I have found that this foramen does not always exist, but in what proportion of cases this might occur I am unable to say. When this is the case, it favors the operation by saving the vessels to supply the palatine flap with blood. If the foramen exists, it is very difficult to release the vessels without injury. This can only be done by carefully nipping with the small bone-forceps the bony ring through which the vessels pass.

The right lateral incisor was now extracted, and by its socket through a little to the right of the center of the hard palate (Fig. 6, *h*), so as to save the vomer, a section was made with the oral saw, thus dividing the superior maxillary bones. This saw was now changed for one much shorter, the teeth of which were changed to a different angle, so as to allow the cheek to go into the U shank, and also let the saw play freely. This section was made up between the tumor and the internal pterygoid process (Fig. 6, *a*) to the malar bone, then forward through the canine fossa, dividing also the inferior tubinated bone, to meet the other section at the right ala nasi. After the saw had entered the antrum in this last section, the handle of the saw was advanced more rapidly than the point; this prevented the point of the

FIG. 7.



saw from piercing the vomer, which I desired to save. By these two sections the tumor with some adjacent bone was removed clean. After the slight hemorrhage had stopped, the soft parts were closed by seven silk sutures. In the evening gave sulph. morph. gr. $\frac{1}{4}$. The wound was dressed twice a day for the first week, in order to keep the parts free from nasal mucus. I used a wash of glycerole of thymol, x gr. to the oz. of tepid water, applied with a syringe by introducing the long, curved nozzle into the right nostril.

Nourishing liquid food was taken for two weeks through a glass tube, passed well back into the mouth, to prevent the food from touching the wound. On the fifth day, four of the intermediate sutures were removed, and the remainder on the following day.

On the seventh day a very small opening appeared; the edges were pared, and the part soon healed.

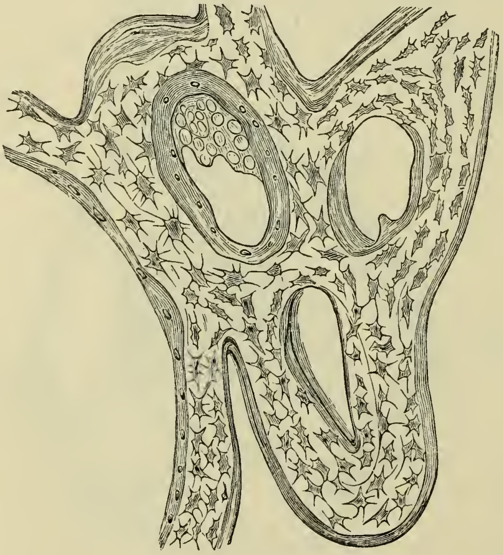
An impression of the parts was taken three months after the operation, and Fig. 7 is an exact representation of it.

It is now a year since the operation, and the palate appears as firm on the resected side as on the other.

It is the opinion of several surgeons that have examined it, that there is a new deposit of bone. The muscles of the soft palate are not contracted, and the uvula is in normal position.

*Pathological Appearances.*—On making a section of the tumor through the longitudinal direction of the teeth, there was to be seen the following: at the apex of the second molar tooth there was a small, soft cyst, containing some pus, and, for a short distance surrounding this the bone appeared quite cancellated, but the rest of the tumor was quite dense in structure.

Fig. 8.



The pulps of the canine and first bicuspid had still some vitality, but that of the second bicuspid was dead. The pulp-chambers were decreased in size by a deposit of osteo-dentine to their walls; slight hypertrophy of the cementum on the fangs. A large nerve entered the tumor on its buccal side

The microscopical examination of this tumor, as made by Dr. J. W. S. Arnold, and as shown by his drawing, Fig. 8, is "composed of cancellated tissue almost entirely. The outer edge of a thin layer of more compact bony tissue. In the spongy part a small amount of soft marrow, containing the usual constituents of fœtal marrow, *i.e.* medulla cells, and myelo-plaxes with oil-globules."

The most probable cause of this growth appeared to be the irritation of the periosteum by the decaying roots of the teeth: nature's effort to throw off everything that becomes abnormal to her; and so when a tooth loses its crown (it being of no further use in the economy), the roots, after the death of the peridental membrane, rise up to the surface, and occasionally loosen and fall out.

As has been stated, one of the roots of the molars lay imbedded in the soft parts on the surface of the tumor, while the other roots had very little attachment to the bone, and really became foreign bodies stimulating the periosteum to produce an excess of bone.

The following case will serve to illustrate from a surgical point, and also give pathologically, a rare and remarkable heterogeneous development of the dental tissues. I have been able to find only three similar cases recorded. The first occurred in the practice of Sir William Fergusson (Tomes's "Dental Surgery," p. 224). The second was presented to the French Academy, by Dr. M. Forget, in 1859. The third was reported to the Odontological Society of Great Britain, in 1862, by W. A. Harrison, F.R.C.S.

*Osteo-Dental Tumor of the Inferior Maxillary.*—Miss A. C., aged twenty-three years, of slight figure, and in somewhat anæmic condition, sought advice in regard to an enlargement of her lower jaw that had given her trouble from childhood. From inability to masticate her food, her health had suffered much. She complained of great pain on closing her jaws, and much tenderness at all other times.

Externally there appeared a swelling on the right side of the inferior maxillary anterior to the ramus.

On opening the mouth a tumor was seen to extend from near the ramus forward to the first bicuspid tooth. On the surface of the tumor there appeared imbedded a portion of a crown of a deciduous molar.

None of the permanent molars or the second bicuspid had made their appearance. The first bicuspid with all the other anterior teeth on that side, were well developed. The tumor involved the alveolus, the top of which was quite broad, while the base of the jaw appeared in normal condition. From the upper teeth closing on the tumor, and by the irritation thus produced, there was a slight discharge of pus. Examining this portion of the deciduous molar seen on the surface of the tumor (Fig. 9, *a*) with a probe, it was found to be quite firmly imbedded in the bone, that was very much increased in size around it. By this examination I was strongly of the opinion that this was an osteo-dental tumor, *i.e.* an hypertrophy of the anatomical elements (with the exception of the enamel) of a tooth, there being also hypertrophy of the surrounding bone.

I was led to this diagnosis from the following prominent points in this case: The process of second dentition was imperfect, there being no teeth posterior to the first bicuspid, the space now occupied by the tumor.

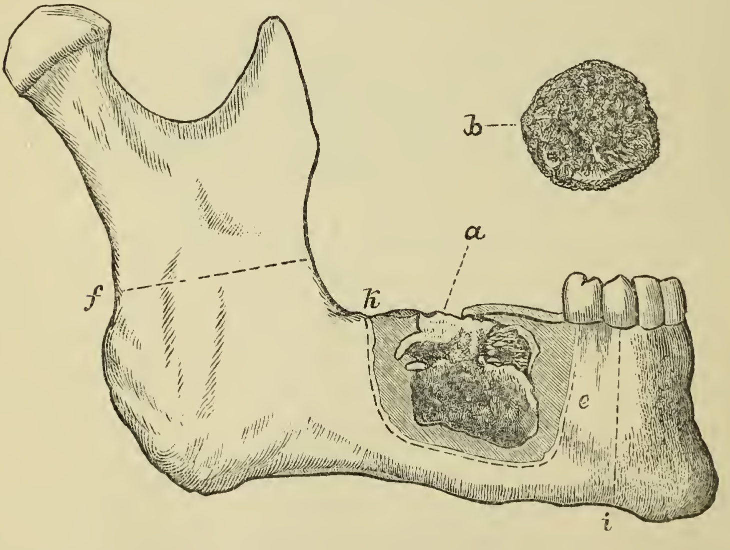
She has distinct recollections of having, while quite young, a deciduous tooth extracted from that side and none since.

The opposite side has three well-developed teeth in the corresponding space. The small fragment in the surface, resembling the portion of a deciduous molar, is undoubtedly the enamel of a tooth, and not bone. When the probe was passed around this, they were fastened firm in what seemed to be some hard, rough mass below.

This trouble commenced at an early age, and was localized at this point from the very first. From all appearances it was considered benigned. As the base of the jaw underneath the tumor appeared in normal condition, I did not feel justified in removing it, and made the following excision of the tumor. As the operation was made in the country, the head-rest was attached to a common table. The head was not thrown back so much as in operations on the superior maxillary. No external incision was made in this case.

Two incisions were made one-half inch apart from the ramus to the canine tooth on each side of the top of the tumor; the periosteum, denuded from the part to be taken away, and the first bicuspid, was extracted. An oral saw of sufficient length was placed in the socket in right angles to the U shank. The cheek-holder that had been used thus far in the operation was now removed. The section with the oral saw commencing behind the tumor (Fig. 9, *k*), close to the ramus, through the jaw, to within about one-half inch of its base, then forward to the first bicuspid, and upward to the surface by its socket (Fig. 9, *e*). The inferior dental artery was secured by torsion. On examination the base of the jaw was found quite healthy. The periosteum was closed by two silver sutures. As the tongue and cheek acted as splints, more was not necessary.

Fig. 9.



*Pathological Examination of Tumor.*—The examination of the tumor proved the diagnosis to be correct. On the top of the tumor (Fig. 9, *a*) was seen a portion of the enamel of the crown of a tooth, very much like a half-decayed deciduous molar. The part below this in external appearance was rough on the surface, and seemed dense in structure, with the exception of a concave surface on the bottom of the tumor, which was quite porous, and sticking out from this were a number of spines between which are minute openings into the centre of the tumor for the passage of the vessels of the pulp.

Alongside this were two other concave surfaces, not so deep, but dense and somewhat smooth. These were produced by the cusps of a molar tooth found below the tumor at this point, but very much destroyed by the pus in which they were found. This was probably the cusps of the first permanent molar, and the tumor was the last deciduous molar presenting this abnormal appearance. No other teeth were found.

On making a section of the tumor there was seen columns or spiculæ running from the circumference to the centre, forming quite a net-work in which the pulp was held, so that, instead of having one pulp-chamber, there were many (Fig. 9, *b*).

*Microscopical Appearance.*—A dental germ that is compelled to take on an abnormal position may have different sequelæ. It may be heterogeneously developed, as in this case; it may make a mal-eruption, or remain encysted, or die when partially developed.

It may be well just here to describe briefly the anatomical structure before considering the pathological lesion. A tooth is composed of enamel, dentine, cementum, pulp, and periodonteum.

The microscopical structure of *enamel* (crown) consists of long, slender, solid, prismatic, for the most part hexagonal fibers of phosphate, carbonate, and fluate of lime. These fibers radiate from the center to the surface.

This covers that portion of the tooth seen above the gum. The *dentine* makes up the great body of the tooth, and is found between the pulp and the enamel and cementum.

Dentine is composed of numberless tubules about one-ten-thousandth of an inch in diameter. Their course is from the pulp to the enamel or cementum. Chemical difference between enamel and dentine is in the absence of the fluate of lime.

The *cementum* is that portion that covers the fangs. It closely resembles in character the osseous structure. The microscope demonstrates the existence of Haversian canals and corpuscle of Purkinje (osteoplasts of Robin).

The *dental pulp* is a soft, translucent, reddish-white substance enclosed in the centre of the tooth, called the pulp-cavity. It is made up of delicate connective tissue, dental nerve, artery, and vein, and is extremely sensitive and vascular. This is enveloped in a very delicate and apparently structureless membrane, adherent to the walls of the pulp-cavity, and continuous with the alveolo-dental periosteum.

*Peridental membrane,* that covers the fangs of the teeth, differs very little anatomically and physiologically from membranes of its order quite prone to take on pathological conditions, perhaps more so than any membrane of its class.

Fig. 10, drawn from a section of the tumor, made by Dr. Arnold, represents the dental tissues in a deranged and distorted condition. The internal structure was very much fenestrated.

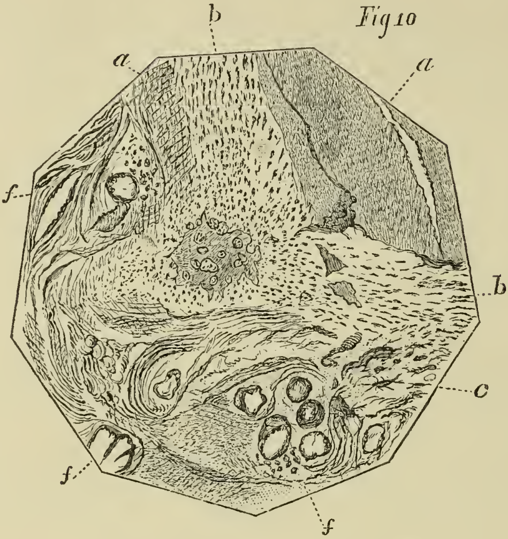


Fig 10

*a*, *a*, represents the enamel at the top of the tumor penetrating into fissures or depressions in the mass below. There are some instances where a portion of enamel was quite isolated by dentine or cement.

*b*, *b*. Here is represented the dentine passing from the center in two directions. In one instance passing between two layers of enamel, and in the other between enamel and cement.

*c*. The cement is here to be seen recognized by the presence of lacunæ.

*f*,*f*,*f*, represents the fenestra, once occupied by the dental pulp. Around some of these may be seen the distorted dentinal tubuli.

*Excision of Part of Inferior Maxillary for Necrosis*.—William N., aged twenty-seven years, born in New York. In 1863 came home from the army with intermittent fever, and, about two months after his arrival in the city, a swelling appeared on his right cheek, opposite the first inferior molar, from an injury received some time before. This was opened, and he states that the opening continued to discharge for six years, during which time he had extracted three sound teeth.

On his first visit to me, in 1869, his cheek was very much swollen, and he was unable to open his mouth. I lanced it, and evacuated a large amount of pus. At his next visit, the swelling had nearly all gone, with still some discharge through the old fistulous opening in the cheek. The border of this opening had the characteristic appearance of necrosis.

On passing the probe into this opening, it went into the mental foramen, and passed backward. I next made an examination of the mouth, and discovered that he had lost the second bicuspid, first and second molars. The wisdom-tooth still remained, and was not decayed, but, after a careful examination, I found the dental pulp dead, and the tooth somewhat loose. I extracted it, and hanging to the apex of the fang was a very large, soft cyst, filled with pus. There was a communication from the socket of this tooth through the bone to the external opening.

I washed it out by means of a syringe, with carbolic acid and water (x gr. to the oz.), placed a tent in the external opening, and directed him to return should there be any further trouble.

I considered that this wisdom-tooth gave all the trouble, and, now that it was removed, recovery would follow. Some three months afterward he returned, and reported that he had still a constant discharge, with much pain.

In passing the probe, both from the external opening and from the socket of the extracted third molar, I discovered extensive necrosis of that part of the jaw between the ramus and the second bicuspid. His general health was very much reduced by this long drain on his system and inability to properly masticate his food.

I at once determined to remove all that portion of the jaw between the ramus and the canine tooth. After putting him in as good condition as possible with tonics and nourishing liquid food, the following operation was made: when etherized and in position, I completely separated the periosteum from the bone, commencing at the symphysis, and extending to within an inch of the temporo-maxillary articulation. There was very little hemorrhage until the inferior dental artery was reached. An incision one-half inch in length was made in the periosteal flaps opposite the ramus, to allow the instruments to pass around the bone.

The canine was extracted and the jaw divided with the oral saw from below upward through the socket of this tooth (Fig. 9, *i*). The necrosed portion was now firmly held with a spicula-forceps by an assistant, while the other section was made half-way between the ramus and the articulation. The saw was passed behind the bone, and the section made forward (Fig. 9, *f*). Stopped hemorrhage from the inferior dental artery by a ligature. Closed flaps with four silver sutures. A tent was placed in the fistulous opening, to allow any discharge to pass freely out.

It is my practice to secure this drainage by passing a seton in the most favorable part. The plaster-of-Paris splint, that was made before the operation, was applied and firmly secured.

There being good articulation of the teeth of the opposite side, it was not necessary to use an interdental splint. This case had a good recovery, although somewhat delayed by the weakened condition of his system.

From demonstrations made on the cadaver, I am persuaded that disarticulation of the lower jaw may be performed without external incision, in the following manner: if the periosteum is to be saved, denude it from the bone to the joint. With an instrument, similar to a gum-lancet, sever the attachments of the internal and external lateral ligaments. Then make the anterior section of the jaw with the oral saw, as before described.

A knife, one inch in length, flat upon one side, and convex on the other, with cutting edges on one side and end, is placed in the socket of the U shank of the oral saw-holder, with the edge presenting forward when in position for use.

Pass the knife behind the ramus and up to the articulation, and let it be brought upward and forward, at the same time rotating the handle somewhat, with occasional depressing and elevating it, thus severing the capsular ligament. The knife may be carried over the sigmoid notch and coronoid process, detaching the temporal muscle.

Before the knife enters the articulation, elevate the anterior portion of the jaw, and depress when passing over the coronoid process. This operation is done with greater ease in the young than in the old. Should it be necessary, in order to reach the joint, an external incision may be made through one or both of the lips in the median line.

*Plaster-of-Paris Splint.*—The following is a simple and efficient method for making a plaster-of-Paris splint for the lower jaw. Take a piece of pasteboard or a whole newspaper folded to the size and cut to the form and dimensions (7 × 6 × 9 inches) seen in Fig. 11. (This is about the average size for an adult.) Now fold No. 1 on No. 2, and No. 3 on top of these, and fasten with a pin, and you have the shape as seen in Fig. 12. This is to hold the splint while the plaster hardens. To make the splint, take a piece of muslin twice the size of Fig. 11, fold it on itself, and cut to the same size and dimensions as in the case of the paper-holder.

Fig. 11.

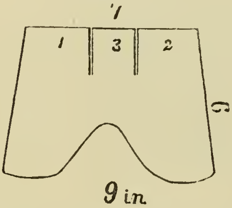
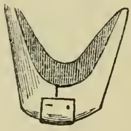


Fig. 12.



Wet this with water, open and spread out smooth, when the two extremities will be the widest. To six ounces water add enough dry plaster-of-Paris to make it as thick as cream; spread this immediately on the wet muslin, leaving a border of half an inch all round. Refold it again on itself, and plaster sides together; fold No. 1 to 2 and 3, as above described; place in the paper-holder, and apply to the jaw, supporting it with the hands for a few moments until the plaster sets. Remove, trim, if necessary, and dry, and it is ready for use. No time should be lost after the plaster is mixed in making the application.

This splint is usually made before the operation, and, when there is any external deformity, this can be readily put right by adding a little more plaster where it is needed. As all the plaster is held between the two folds of muslin, it will not soil the face. In case of fractures, this splint may be fastened to an interdental splint.

The splint may be retained in place by Dr. Garretson's bandage, applied in the following way. Take a strip of muslin, one and a half yards long and two inches wide. Place the chin on the middle of the bandage; carry up and cross on the forehead; then round the sides of the head to cross at the occiput; then forward and fasten at the chin.—*D. H. Goodwillie, M.D., D.D.S., in N. Y. Medical Journal.*

Cancer from a Blow.—Two negroes became pugilistic; one struck the other a heavy blow with a weight, on the upper lip, directly under his nose, which of necessity came in contact with his teeth. The lip was mashed into a black jelly; his front teeth were caved in. He replaced his teeth, and was able to masticate with them in a short time, although they remained loose to some extent. This was three years ago. The teeth gave him occasional pain, and in time there was a fungus growth on the gums. I saw the patient first about September of last year; examined the parts, and was not entirely satisfied as to the nature of the difficulty. I did nothing at the time; was informed by the patient that some portions of the fungus growth had been removed by another physician. I explained to him about the nature of the difficulty, and what the operation would be. He left, and I saw him no more for two months. When next I saw him I felt confident that it was a cancer, involving the injured parts, and also the superior maxillary and bones of the nose. The mouth was rapidly filling up with fungus. He consented to an operation. Drs. M. S. Thomas and Van Duyn assisted. I removed six front teeth, and then made a section of the superior maxillary. Here we rested.

After carefully surveying the ground, we concluded not to interfere further, as another operation would necessitate the removal of the whole of the superior maxillary, nasal bones, and, in all probability, his eyes —then with no prospect of a permanent cure. We used no chloroform. In a very short time the mouth began to fill again with the nodular tissue, a part of which I again removed. It is surprising how very rapidly it grows. I consider this case one of simple injury, of a local character,—one that would have insured success by an early operation. What gave rise to cancer in this case, I am sure I can't tell you. I know there was a constant source of irritation; but why not necrosis or caries, instead of cancer?—*Dr. Brock, in Leavenworth Medical Herald.*

INTENSE PAIN IN HEAD RELIEVED BY REMOVAL OF DECAYED TEETH. —William G., aged thirty-five, who had had syphilis fourteen years before, was admitted into St. George's Hospital in September, 1871, for pain in the head and suffering from epileptic fits, under Dr. Fuller's care. He so far improved as to go down to the Convalescent Hospital, where he had more fits. He was again admitted into St. George's Hospital, complaining of much pain in the head, right arm, and hand, but not at all in the leg, and also of constant vomiting. The pupils were dilated, and there were some "nodes" on the ulna and sternum. His case was described as one of syphilitic periostitis. Under the use of ten-grain doses of iodide of potassium, and subsequently of iodide of sodium and citrate of iron, he continued to improve until he left the hospital at the end of October.

At the end of December he was readmitted under Dr. Ogle, suffering from intense pain in the head and neck and right ear. The power of vision, especially with the right eye, was defective, and he was passing very sleepless nights. The urine was alkaline, and free from either sugar or albumen. Twenty-grain doses of bromide of potassium were given three times a day, and thirty-grain doses of chloral at bedtime, with occasional simple aperients, also nourishing diet. The teeth were excessively decayed and painful; and Dr. Ogle thought the headache might be connected with their condition, but, the dentist at the time objecting to remove them, they were undisturbed. Subsequently, as the pain in the head was so severe, a blister was applied to the nape of the neck, and ten grains of the iodide of potassium were added to his medicine.

At this date (January 19th) the patient could hardly see with either eye, and he was very confused in thought, and irrational, and in much distress. The tongue, when protruded, was deflected to the right, and the right nostril and the aperture of the right eyelid were much larger than those on the left side. On touching and pinching the skin of the right side of the face and neck and right arm, distinct numbness existed; not so elsewhere. Morphia draughts were given at night.

On the 28th, eyesight in both eyes was quite gone, and a distinct "rash" existed over the entire face. The pupils of both eyes were very large, and entirely inactive to light. He was very low and depressed. The pulse fell considerably in strength, and he appeared greatly to have lost muscular power in general. At one time (for three or four days) it was thought he must have died. Mr. Carter examined the eyes at this period, but found nothing abnormal with the ophthalmoscope. Pain still being so complained of in the head, in spite of continuance of medicine, at Dr. Ogle's request several decayed offensive teeth were extracted, and another blister applied to the neck, the medicines being omitted.

For several days after this the pain was much mitigated; vision returned gradually, but completely; strength was regained, and, saving some degree of headache, the patient went to the Convalescent Hospital again tolerably comfortable, having latterly only taken gentian and senna aperients, and a warm bath or two.

In this case Dr. Ogle recognized the syphilitic character of the disease, yet he attributed much of the severe headache, sleeplessness at night, and defective vision, to the effects of the decayed teeth, on the removal of which improvement in respect of the above symptoms quickly resulted. From the history, symptoms, and results of treatment, Dr. Ogle thought the case had undoubtedly a syphilitic origin.—*Med. Times and Gazette.*

Epithelial Cancer of the Tongue.—In the tongue, the especial seat of the disease to which I wish to call your attention, these varied characters of what I consider to be essentially the same disease are commonly found. In the cases brought before you we have some commencing as a small primary fissure or cleft, very painful in character, with hard, raised, and thickened edges, and intractable progress. This has been described by some as the superficial form of the disease. Others have commenced as a somewhat deep-seated and very hard tumor, attracting the attention of the patient from the first by its tenderness, darting pains, and interference with the use of the organ in articulation and mastication, rather than by any sore or ulcer on the surface. This form was well illustrated in the case of James D——, aged thirty-four, who was in the Victoria ward from April 6th to May 11th of this year. In this patient attention was first called to the disease last July (a year ago), by a pain on the right side of the tongue, first felt after smoking a foul pipe. On the application of a little alum and abstaining from his pipe it became better, but got bad again in September last. He then went into the country and recruited his general health, and then felt nothing of it till two months ago, when he noticed a hard lump about the size of a nut. This rubbed against the sharp edge of a bad tooth, and then became excoriated. There was no history either of syphilis or cancer. He has always been temperate, but has suffered from rheumatic gout and from frequent attacks of bilious vomiting and dyspepsia. Now there was a good deal of cachexia about the man. He was thin, with glistening eyes, anxious look, and suffered agonizing pain night and day. He presented a decidedly jaundiced tinge, but there was no enlargement or tenderness perceptible about the submaxillary glands. After the removal of about one-third of the right side of the tongue along its whole length, followed by the free application of the chloride of zinc, the patient had an attack of jaundice, indicating either some already decided organic change or great functional susceptibility in the liver. From this, however, he in a few days got better, and finally made a very good recovery, picking up strength wonderfully quick, feeding well, and being free from pain. On the 11th of May he left the hospital with the wound nearly healed, and expressing himself greatly relieved by the operation. He has since attended as an out-patient, and has had lately another piece of the tongue removed for a suspicious hardness which appeared at the base of a small sore left at the front part of the tongue.—*Clinical Lecture, by John Wood, F.R.S., King's College Hospital; The Lancet.*

ULCER OF CORNEA AND DENTAL ABSCESS.—That a diseased tooth may be an immediate cause of a corneal ulcer, or an active agent in prolonging its cure, Dr. C. E. Wright, of Indianapolis, Ind. (*Ind. Jour. Med.*, July, 1872), would admit. He publishes the case of a lady, æt. 40, who had an indolent round ulcer on the corner of the right eye, and had been subject to violent paroxysms of toothache and neuralgic pains on right half of face and head for months. After proper ophthalmological treatment she was advised to consult her dentist, Dr. P. G. C. Hunt, who extracted the first upper molar on right side, finding an abscess at the root. The same treatment of the eye was continued, and in about three days the eye was well.—*Medical Record.*

AN OINTMENT FOR NEURALGIA.—Dr. J. Knox Hodge recommends the following as an application which will relieve facial or any other neuralgia almost instantaneously. He advises his friends to "send around to the druggist's and try a bottle."

℞—Albumen of egg, ʒj.
Rhigolene, ℥iv.
Oil of peppermint, ℥ij.
Collodion,
Chloroform, āā ℥j.—M.

Agitate occasionally for 24 hours, and by gelatinization a beautiful semi-solidified, opodeldoc-looking compound results, which will retain its consistency and hold the ingredients intimately blended for months.

In the above we find a local agent of signal potency in all neuralgic affections, and for the relief of pain generally.

Apply by smart friction with the hand, or gently with a soft brush or mop along the course of the nerve involved.—*Georgia Medical Companion.*

MECHANICAL DENTISTRY.—Mr. James S. Turner delivered an Introductory Address on Wednesday evening, October 2d, on the position of Mechanical Dentistry.

The lecturer said: Since we last met, the Council of the Royal College of Surgeons has issued an order which points clearly to a more stringent examination for the license to practise dental surgery. I believe that this is a wise step; and that you will meet the additional demands successfully I do not for a moment doubt. But the examination at the college is principally of a surgical nature; the mechanical branch is perhaps unavoidably left to take care of itself. For my own part, I do not object to this arrangement, because I believe that the subject of mechanical dentistry is sufficiently interesting and of sufficient importance to take care of itself. It is interesting, because it is altogether different from the rest of your studies. It brings into play a different set of faculties, and, by affording scope for ingenuity and invention, administers, as it were, a tonic to the mind which may be wearied by the objective teachings of surgery or physiology, or surfeited with the endless details of the dissecting-room. It is of importance to you, because in your future career it will very likely form the staple source of your income. The ophthalmic surgeon receives a high fee for performing iridectomy or for the removal of cataract; so also does the orthopedic surgeon for the subcutaneous division of a tendon, and kindred operations; yet either of these is not more difficult to learn, and, when once mastered, does not involve half the mental or physical labor extracted from the dental surgeon by the majority of gold-stoppings, for which he receives the munificent fee of a guinea. Perhaps the secret of this disparity lies in the fact that the mechanical contrivances which are applied to remedy the defects and inconveniences of a contracted tendon or a deformed limb are generally both clumsy and inconvenient, as well as ugly, and, worst of all, their hideousness is nearly always apparent; while the substitute for an eye is only a glittering sham, worn more for the sake of others than for the comfort of the wearer. In dentistry, the reverse is the case: a good artificial tooth is a thousand times better than an inferior natural one; the artificial substitute is at once an improvement in appearance and a valuable adjunct to health. Hence the public, in this country at least, are impatient of long, and oftentimes painful, operations for the preservation of their teeth; and ladies especially object to having their front teeth patched up with gold, which in many instances seem to the uninitiated ligatures securing a badly made artificial denture. These, to my mind, form some of the reasons for the inadequate remuneration received by dentists in the country for the most laborious of all occupations, gold-stopping. Hence, as I said, the particular branch of our profession which you are now studying is likely to be the main source of your income, and, looked at in this light, it becomes of great importance. But there is another point to which I would call your attention. I have said that this branch of our profession has been left to take care of itself; and I say further, that it is likely to do so; for, whatever position dentists may take, or whatever protection dentists may, as a body, receive from law when they have shown themselves worthy of such protection, I do not see how any special privileges could be granted to dental surgeons which would extend to the mechanical branch of the profession. Thus the most lucrative portion of our occupation is the most vulnerable one, and most open to unprincipled opposition; and although the man who has a thorough knowledge of dentistry in all its branches will undoubtedly be the safest and best, and will always be sought after in cases of difficulty, still we know that the masses of the people are prone to serve themselves in the cheapest, if not always in the best, way. As a consequence of this, a great number of cases are likely to pass into the hands of those who can work for a smaller fee, because they have not given either the time or money in acquiring the knowledge which you possess. It is true that difficult cases will always find their way to the man who is prepared to meet them; but there are many cases which, to a good mechanic, are not difficult, and where the artificial contrivances, when constructed with a moderate amount of skill, may be worn with a fair amount of comfort by those who do not know how much better off they might be. Besides, it is hard to be always fighting with abnormalities, particularly when we know that others are fattening on cases more easy of digestion.

In the face of this unfair, but, so far as I can see, highly probable state of things, we may console ourselves with the reflection that our profession is gradually but surely taking its position as an important branch of surgery. Dentists who choose to educate themselves can now be affiliated to the Royal College of Surgeons as dentists; so that, although in many instances holding the diploma of membership, they are distinguished from the general surgeon or from other specialties by the dental license.

Now, the position which medical men occupy towards their patients makes them an authority in the choice of a dentist. Our dental certificate is now, and will become more and more, a guide to those gentlemen in advising their patients. We may, therefore, expect with confidence the support of the medical profession in our attempt to supply the public with scientific dentistry. But this will not of itself meet the difficulty with which we started; you must be prepared by superior skill to justify the recommendation of your medical friends. You have the conditions all in your favor: an eye trained to be sure, a will trained to act, and a store of knowledge at your command which gives you a great start in the race; and if your terms are necessarily higher than those of the men to whom I have alluded, you ought, by your superior advantages, to be able to recompense your patients for their extra outlay. I would ask you, then, for your own sakes, not to imagine, because there is no crucial standard for you to pass under in Lincoln's Inn Fields, that you may be contented with a superficial knowledge of mechanical dentistry. Do not run away with the idea that you can delegate your work to others. I believe that, unless you can do it for yourself, very few will be able to do it for you, and still fewer will care to do it for you, knowing as they must that their efforts will not be appreciated.

I am of opinion that it is an easy matter to arrive at a moderate degree of excellence in dental mechanics; but when you wish to make a step beyond this, it is like the extra mile in speed to be got out of the marine engine when it has been nearly worked up to its full driving power: it requires more pressure and more fuel to get that one extra mile than was required for any two or three miles in the lower scale of speed. Now this is the pressure you will require to put on if you wish to hold your own against the competition to which you are sure to be subjected. It will not be injurious to you; it will not, like cramming, addle your brain and confound your knowledge, but it will be a source of comfort and power to you all the days of your life.—*Monthly Review of Dental Surgery.*

MECHANICAL APPLIANCES TO SUPERSEDE MANUAL WORK.—American genius stands pre-eminent in the perfection of mechanical appliances to supersede manual work. Perfect invention to this end is, indeed, the offspring of necessity in the United States, where scarcity of hand labor has forced forward, to an almost inconceivable degree, human ingenuity. In this special branch of invention, there can be no dispute that the Yankees can give the world long odds and beat him. In England, where labor has been always abundant, and until of late, cheap, the genius of invention has trodden rather the higher than the humbler path; has tended rather to achieve great ends than to effect simple purposes, has given mechanical handicraft less attention and devoted itself to great physical revolutions. In America it is far different; there is scarcely an industry too humble, a labor too mechanical or common to escape the attention of the inventor, who, with an almost infinite ingenuity, sets himself to work to combine all the known mechanical movements and to invent new ones, until the sleight of the hand of the operator is imitated to the life, and the dead metal is endued with life and power with which flesh and blood cannot compete.

Deterioration of Pulpless Teeth.—It is a fact generally recognized by every dentist of much experience or close observation, that the integrity of the enamel and dentine of pulpless teeth passes away, with, however, varying degrees of rapidity, dependent upon the character of their structure; and this being modified by the original type, together with the condition and force of the organizing and developing agency at the time of their formation.

Usually teeth deprived of their pulps become, in a comparatively short time, friable, which is clearly shown by the readiness and frequency with which thin portions and attenuated edges break away. This is the difficulty that usually follows the operation of filling such teeth. It is, however, somewhat overcome or lessened since the introduction and use of heavy foils. By this means such feeble parts may be covered and protected far more effectually than when only thin foils were used. This impairment of the enamel and dentine occurs because of the deprivation of nutrient supply; and it is not only exhibited in the manner referred to, but also by the increased susceptibility of the tooth substance to the action of decay-producing agents. Teeth vary exceedingly in the character of their structure; they have general features and aspects that are common to all, yet there is to every one an individuality which is constituted by variation in structural details. This variation is palpable to the unaided vision in respect to form and size, but is quite as plainly marked in the minute structure, under the microscope. These variations are, in the teeth, as in other structures or tissues, the occasion of ever-varying susceptibilities, both in the living and the dead.

The organization in some is so thorough, and the dentine and enamel so nearly perfect, as to resist any ordinary decay-inducing agents that are brought into contact with them, and this sometimes to a great extent even after devitalization; while in other cases, so inferior are these structures that they are scarcely able to maintain their integrity when but slightly and only for a short time exposed to the feeblest decomposing agents, even when possessed of their normal vitality, and with such, devitalization is followed by rapid and entire dissolution. Now there is an almost infinite variety of predispositions and susceptibilities between the extremes just presented; and the ability to apprehend and understand these conditions and susceptibilities, and, in treatment, to follow the indications, is an attainment of no mean order, and one that should be sought by every dentist. The integrity of organized living tissue is maintained by the presence of the vital principle, together with the processes carried on by it, and, as is already intimated, the hold of the vitality upon the material part of tissues is exceedingly variable, in some holding a very firm grasp, and in others yielding its tenure at the first approach of danger. These things being true, the conclusion is forced upon us that the most acute and cultivated perception is requisite for the proper management of the teeth after they are attacked by disease. Teeth, the pulps of which are destroyed, have no vitality and receive no nutrition, and, in common with all organized structures deprived of vitality, immediately begin to undergo deterioration, and, sooner or later, suffer entire dissolution. With the teeth, however, this change may be materially modified—not prevented —by proper management, which consists in maintaining the most favorable conditions of the parts and tissues round about them, and excluding, so far as possible, all injurious agents, and protecting the tooth at all points, so far as may be, from mechanical violence, either in the way of strokes or undue attrition. By attention, observation, and thought upon this subject, the educated dentist will not fail to perceive that pulpless teeth require the utmost care for their preservation for any considerable length of time; that the conservation of living teeth is far easier than those devitalized, and that the preservation of the pulps of the teeth is a matter of the utmost importance to those who desire to preserve their teeth in the best condition for the longest possible period.—*Editorial, in Dental Register.*

LARGE CROWNED CAVITIES WITH WALLS UNBROKEN.—In reading Dr. M. S. Dean's essay on "Sound Practice Sound Philosophy," I was struck with what appeared to me to be unsound practice and unsound philosophy. I may be in error; if I am, the ground-work, the principles which I have been taught, are erroneous, and I beg that those more enlightened will teach me.

The doctor says: "In filling *large* crown cavities with surrounding walls unbroken, the central portion should be kept higher than the peripheral, especially as the work approaches completion. If, during the process of filling, the plug maintains a concave surface, the force applied tends to draw the gold away from the margins. These can be made perfect only by the principle of wedging. Gold should not be forced *unwillingly* into any portion of a filling where cohesion is important. The pellet and plug must unite by first intention, and before the gold has been rolled from place to place, and thus becoming partially condensed or knotted."

Now I ask, how will the doctor get wedge pressure with adhesive or cohesive pellets along the margin of said fillings, and at the same time get a union by the first intention? The very principle of a wedge is otherwise. If his filling is of cohesive, and none other is named, it must hold each pellet by cohesion; if of non-cohesive, and none other is adapted to the principle of wedging, it must all hold its position by contending pressures set up by wedging. It is very clear that small pellets may be forced down along a peripheral which is lower than the center, and a good margin made, provided the pellets are small enough, and the angle into which they are driven not too acute. Then, however, there will not be union by the first intention, and the pellet will keep its place both by wedging and cohesion, neither of which will be perfect. If the cohesion on the side of the pellet next the filling is sufficient to counterbalance the pressure of the perpendicular wall, all well; if not, it will of course come away.

Our method of filling these cavities is to *keep* a slight concavity to the plug until the margins are completed by means of which we are enabled at all times to observe what adaptation we are making to the walls; we exert our force nearly always in the direction of the bottom of the cavity, or at least nearly parallel to the wall against, or touching which is the pellet we are condensing.

Force upon the center of a very poorly condensed filling does "have a tendency to draw it from the walls," but if the plug is condensed all the way, each pellet from the bottom, any additional pressure *must expand* and *not contract* the gold. If great density has been had all along on its peripheral, the succeeding central pellets might be just as much a wedge as those the doctor proposes to finish the margins with, with the additional advantage of cohering on all its sides. If there are any doubts of a sufficiently close union with the margins, a smooth point and mallet, when the cavity is just full, will settle all doubt. Again, if the peripheral be kept higher than the center, as we advance we have a ring next the margin being continually lengthened by its increasing density, and, therefore, pressing harder and harder against the walls. If the cavity was circular, and it would be generally somewhat so in the cavity named, the last pellet placed in the center in the concavity of the plug, if drawing up under pressure—and there is no need of its doing so—could not draw in the margins, because the contractions would be against arches.—*Dr. E. L. Hunter, in American Journal of Dental Science.*

NEW MODE OF PIVOTING.—I prepare the root as usually performed for ordinary pivoting, then ream the pulp-chamber in a funnel-shape to about the depth of a quarter of an inch, and in this cut anchorages. The root is frequently decayed in this shape.

A plate-tooth is then taken, and ground to fit the prepared root. It is then backed with gold plate. A portion of the sides of the tooth and backing are then ground off, leaving the labial surface the original size. A pivot is then soldered to the backing, and the frame is cut to the proper length, to allow the crown to leave a space of about a line between it and the root. Then prick the backing and pivot with a sharp instrument, and apply some oxychloride of zinc in the pulp-chamber, and force the crown and pivot into position. Gold is then packed into the anchorages, and built up around the pivot, bringing it well up on the backing.

When the crown and pivot are in position, there are but two thin edges, about a line distant from each other, with plenty of space left at the palatine *and proximal surfaces of crown for packing gold.*

The greatest obstacle in the way is to prevent the inflow of saliva; but I think this can be accomplished in most cases.—*S. Davis, in Dental Times.*

ACCIDENTAL EXTRACTION—REPLACEMENT.—In haste, by reason of an early call, Dr. Y——, of this city, was caught in the mouth by his clothes-line, lifted from the ground by its hold upon the right superior lateral, cuspid, and first bicuspid teeth, which, turning outward, though hanging by the gum, let the Doctor down flat on his back. With much good sense he turned the teeth back, and coming into our office, we fastened them in place, and now, after five days, very little inflammation is present, and the teeth are pretty firm in place. The manner of fastening was simple. There being no teeth between these teeth and the third molar of same side, and no right superior central (thus giving the *rope* a good hold upon the teeth), we tied the middle of a piece of gilling twine to the molar referred to, brought forward with a hard knot behind the bicuspid, wove between and around the loose teeth, a hard knot anteriorly to the lateral, and thence to the firm central, thus preventing an outward movement.—*O. Willson, in Missouri Dental Journal.*

FRACTURE OF THE LOWER JAW.—The following case came under my notice lately, viz., a young man employed in a timber yard received a very severe blow from a lever used in turning large pieces of timber, which struck him with great violence on the left side upper portion of lower jaw, between angle and condyle. I was consulted two days after the accident had occurred, and on examination I found considerable inflammation in the muscular structure and cellular tissue of the parts adjoining the accident. Also the power of opening the mouth was much impeded, which led me first to suspect fracture of the condyle; this, however, I found quite safe. I then examined all the lower jaw, and was much surprised to find that fracture of the *opposite side*, between first and second bicuspids, had occurred (illustrating the *contre coup* of the French), consequently the shorter portion of the bone was slightly elevated by the action of the levator muscles of lower jaw, while the larger anterior fractured portion was slightly depressed. The curative treatment was obvious: I fitted a cap of gutta-percha over the lower teeth, so as to bring the fractured parts of jaw into correct apposition. I then sent the patient to the Leper Hospital, of this city. Under the care of the junior surgeon of this institution the patient was discharged, cured, in four weeks. —*Dr. Geo. Freeman, in British Journal of Dental Science.*

FRACTURE OF THREE BICUSPID TEETH LONGITUDINALLY.—On the 26th of July, my friend and neighbor, Dr. G. W. Currey, brought to my office Mr. Cotter, a brakeman on the Northwestern Railroad, who, in attempting to check the progress of an engine at a station near the city, by putting the end of a fence-rail under the wheels, was violently struck under the chin by the other end being thrown up, by which he was rendered insensible for half an hour. The patient was in good health, and aged twenty-five years. After a few days, he came to Nashville, and was seen by Dr. C., who said to me, "Here is a singular case of fracture, and I want you to report it, for it will require witnesses to make even the profession believe it." The two left bicuspids and the first one of the right side were seen to be fissured, perpendicularly, and vertically, apparently to the extremity of their fangs. The inner halves could be pressed inwards by the probe or nail of the finger, and were, moreover, quite loose. The man had suffered greatly, but now permitted these loose portions to be removed, which confirmed the supposition of their division down to the extremity of the roots.

The *rationale* of the accident we think was this—that as the superior dental arch overlaps somewhat the inferior, the outer cusps of the lower jaw were, by the blow, driven between those of the corresponding and antagonist in the superior, and like a wedge, had split them in two. The integuments under the chin were contused, but there was no fracture of the inferior or superior maxillary.

That the breaking of a bicuspid tooth longitudinally is of rare occurrence, may be inferred from the fact that in the recent work on Oral Diseases and Surgery, by Prof. Garretson, M.D., etc., edition of 1869, Philadelphia, no other allusion is made to the subject than to those which take place in attempts at their extraction; and Mr. John Tomes, F.R.S., Dentist to the London and Middlesex Hospitals, probably the highest English dental authority, states that the molars may be injured by the jaws being violently driven together, so that their cusps, or spear-like processes, may be broken off. He mentions a case in which he had seen the fissure extend from the crown through the greater portion of the root. The only one somewhat similar to that reported here is met with in Vol. X. *Dictionnaire de Médecine*, in thirty volumes, in which it is said that M. Duval once saw a man of sixty years who had two bicuspids of the superior maxillary fractured longitudinally, without much effort or pain. The author of the article, M. Oudet, states also that he had met with two or three like cases.

In the instance now recorded, both superior small molars on one side, and the first of the other side, were simultaneously split from their crowns to the ends of their fangs, by a violent blow suddenly received under the chin. The pulp cavities having been fully exposed, the teeth will necessarily be lost.—*Paul F. Eve, M.D., in Nashville Journal of Medicine and Surgery.*

HEMORRHAGE FOLLOWING EXTRACTION OF A TOOTH.—Elizabeth Fellows was admitted into the receiving-room of the London Hospital, at 8 A.M. on September 5th, 1872.

The patient was a girl thirteen years old, with golden hair, gray irides. She had well-formed features and limbs, and presented no characteristic marks of any particular diathesis. Patient was helped into the room by her mother, and when seen by the house-surgeon was found to be suffering from a severe loss of blood; her lips were "blanched," her face pale, and she was somewhat faint.

Her mother gave us the following history: Four days ago the patient had had her second right bicuspid tooth of lower jaw removed; the bleeding following the operation did not cease for five hours, when her dentist stopped it by plugging the cavity with cotton wool; this she stated prevented hemorrhage until last night, when during sleep parts of the plugging came away and the hemorrhage became more and more profuse, "soaking her pillow and bed;" the girl losing, her mother thinks, quite a pint of blood from the commencement. On removing the loose plug of cotton wool, blood flowed more freely from the cavity of the lately removed tooth, welling up from the bottom and pulsating.

*Treatment.*—Cotton wool soaked in a solution of perchloride of iron (1 to 4) was carefully packed into the cavity, and a pad of lint, very thick and firm, placed over this; the jaw closed on this as much as possible, and was kept in this position by the usual four-tailed bandage. Stimulants to relieve collapse, and tinct. opii mixt., to allay the nervous irritation, permitted us to so sufficiently restore the patient as to place her under the care of Mr. Warren Tay, in the out-patient department.

*Family's History, showing the probability of the "Hemorrhagic Diathesis of this Patient"*—The mother states that she is liable to bleed freely when she cuts herself at all; that she generally menstruates very freely for six days at a time. The father suffers from epistaxis about every three or four months, but this does not appear to have been ever serious.

A brother of this patient, who is about five years old, has frequent epistaxis, which his mother states is relieved by bathing his forehead with cold water. There is no reason to suspect any temporary impoverishment of blood in this case, such as exists in purpura or scurvy, as the child has been in its usual health and has had good food, air, etc.—*London Hospital Reports, in Monthly Review of Dental Surgery.*

TRACHEOTOMY.—Dr. P. Landi reports a successful case of tracheotomy for the extraction of the first molar tooth, lodged for twenty-four hours in the left bronchus of a child seven years of age; the tooth having escaped from the forceps at the moment of extraction.—*Lo Sperimentale.*

REPARATIVE SURGERY.—Observation of the organic processes in living beings has led to the discovery of the wonderful inherent power they possess of repairing injuries of their structure, while experimental physiology has demonstrated the facility with which parts of one body or being can be reunited when severed, or be transplanted to and incorporated with other structures and forms, even of a distinct species. This power of reunion pertains to all tissues, from the simplest to the most complex, and exists in the hard as well as soft textures of both plants and animals, broken teeth even having spontaneously reunited. This reparative power depends upon the functional action of the particles of the body, and the energy of the molecular life; but for the continued existence and activity of these organic atoms, proper sustenance is as necessary as for the system in general, which in fact is but an aggregation of minute corpuscles. This is strikingly exemplified in the experiment of injecting fresh blood into an amputated and apparently dead limb with the effect of restoring temporarily its vital tonicity and healthy appearance, as well as by the results of transfusion of the same in reanimating the whole organism when in a dying condition. Hence the due supply of the essential pabulum to the working molecules for the healing of wounds and reunion of divided parts is indispensable, but in the early stages of reparation the conveyance of this does not seem to be immediately dependent upon the blood-vessels, simple agglutination or plastic coalescence of molecular and cell structure, with direct transudation of nutrient matter, before the vascular connection is established, being all-sufficient in the intercellular tissue of the highest, as in all parts of the lowest forms of life, wherein there is no distinct vascular system. To insure the successful transplantation of living structure and the reunion of divided parts, therefore, beside the prerequisite of close apposition thereof, it is absolutely necessary to supply a sufficiency of the particular material required for the reparative process, as the aliment of one tissue differs from another, so that primary union may be effected without the complication of suppuration and secondary healing by granulations, pus being degenerate plasma and decomposing animal matter, incapable *per se* of aiding, but on the contrary always retarding, cicatrization. By greater attention to this special alimentation, and more systematic effort in all directions, conservative surgery may make still better progress in the repair of injuries, transplantation of organic structure, the replacement of several parts, and the more complete preservation intact of the body generally. Indeed, such gratifying success has already been achieved in extreme cases as to encourage still more decided efforts to preserve and restore the integrity of every essential part, however small, of the living economy, and thereby maintain the symmetry and usefulness of the entire body.—*Editorial, in Medical Cosmos.*

PATHOLOGY ONLY DERANGED PHYSIOLOGY.—Respecting the object we work for, this living organism of ours, one great advance has of late been made. We are acquiring a physiological notion of disease. Disease is no entity; it is but a modification of health,—a perverted physiological process; and this must at all times be insisted upon. Were it not that we fear death and dislike pain, we should not look upon disease as anything abnormal in the life-process, but to be as part and parcel of it. Few would now venture on a definition of disease, for, in reality, it is but the course of nature in a living thing which is not health. In health, the balance of function is even; incline it to either side, and there is disease. That being so, just as the life-process constitutes an individual and puts him apart from his fellows, so must any alteration in it be individual, and not general. But to the ignorant, disease is an entity,—an evil spirit which attacks us and seizes us. Hence arises the word "seizure," which, though in a somewhat different way, we still use, but with a protest. To the charlatan, disease is a set of symptoms, to be attacked by a variety of drugs,—a drug for each symptom. To us, disease is a life-process of a perverted kind.—*Sir William Gull, before the Clinical Society of London: Lancet.*

ETHER AND CHLOROFORM.—The constantly recurring accounts of deaths from chloroform seem to have no terror for its advocates, who doubtless honestly believe these actions to be due to carelessness in administration, or to impurities in the agent itself. Two cases, indeed, have recently been reported, in which the inhalation of sulphuric ether was accused of fatal results. But even if these were correctly construed, which we doubt, can they weigh at all against the hundreds and hundreds in which the lethal effects of chloroform were beyond question? And has this latter any real advantages to offset its fearful risks? Its advocates say that it is easier of administration, more agreeable to the patient, and less apt to induce nausea, than ether; and in certain operations, its non-inflammability is a strong point in its favor. And yet our own experience leads us to doubt whether the safer agent is not in most cases quite as available.—*Editorial, in Phil. Med. Times.*

DEATH UNDER THE ADMINISTRATION OF CHLOROFORM.—We regret to record another death from the administration of chloroform, which took place at the Great Northern Hospital on Wednesday. The patient was a man fifty-three years of age, on whom Mr. Carr Jackson was about to perform the operation of lithotomy. The vapor was administered by Mr. George Eestes, the chloroformist of the hospital, who has had extensive experience in anæsthetics. Mr. Osman Vincent, Mr. Vernon, and Mr. Bloxam, all experienced chloroformists, were present;

but the efforts of all were unavailing in restoring the unfortunate man to consciousness.

Dr. Glascott exhibited to the Manchester Medical Society the heart of a man who had recently died at the Manchester Royal Eye Hospital whilst chloroform was being administered to him previous to an intended cataract operation.—*British Medical Journal.*

DEATH UNDER CHLOROFORM.—Dr. Asa Wheat, of Canaan, N. H., on August 24th, 1872, gave his wife chloroform for the extraction of teeth; his brother, a dentist, had extracted three, when the patient became faint, and in spite of every effort made to revive her, died in a few moments.—*Med. and Surg. Journal.*

DEATHS FROM CHLOROFORM.—The occurrence of several fatal cases from chloroform during the last few weeks must not be regarded as an evidence that such cases are increasing in number from carelessness on the part of the administrators, but rather as proof, if proof were required, that averages taken from large numbers of cases are sure to recur. The inquiries of Dr. Richardson show, we believe, that the proportion of deaths from chloroform is about 1 in 2500, taken from somewhat more than 80,000 cases, and his investigations have demonstrated that fatal cases occur among animals in a nearly similar ratio, even when every precaution was used that the conditions of temperature, amount of vapor inhaled, etc., were as nearly as possible equalized. His investigations furnish satisfactory evidence that chloroform, and, indeed, all the anæsthetics containing chlorine, kill by constricting the capillaries of the lungs, which accordingly appear almost white after death; whilst the action of ether and its allies seems rather to paralyze the muscular coats of the smaller vessels, the lungs, even after prolonged exposure to the vapor of ether, being deeply congested. The statement made the other day at the Ophthalmological Congress by Dr. Joy Jeffreys, to the effect that it is almost impossible to kill a patient with ether, is certainly deserving of consideration. We still, however, require an anæsthetic which can be administered without danger, and would in the meanwhile counsel operators not to neglect those points, such as abstinence from food and careful attention to the action of the anæsthetic during the early period of its action, which may avert unnecessary risk.—*Lancet.*

A POWERFUL CEMENT.—A cement of great adhesive power may be made by rubbing together, in a mortar, two parts of nitrate of lime, twenty-five of water, and twenty of powdered gum arabic, this forming a transparent cement of wonderful strength, and applicable to wood, porcelain, glass, and stone. The surfaces to be united should be painted with the cement, and firmly bound together until the drying is complete.—*American Artisan.*

LIQUID GLUE.—An excellent liquid glue can be made by dissolving glue in nitric ether. This ether only takes up a certain quantity of glue, so that there is no danger of the solution being too concentrated. The glue obtained in this way can be made to have the consistency of molasses, and its tenacity is said to be twice that dissolved in hot water. A few pieces of india rubber of the size of a bullet put into the glue, and well shaken, will dissolve in a few days, and add to the adhesiveness of the preparation, as well as protect it from the action of moisture.—*Journal of Applied Chemistry.*

# HINTS AND QUERIES.

WILL some one who is familiar with the use of sponge gold give his manner of manipulation, and the kind he prefers? The writer has used Morgan's, with hand pressure, and finds that in time it really gets spongy, or soft. If there is an advocate of this kind of gold who is pleased with the same as a filling, he will confer a favor on several by responding.—X.

REPLY TO "H."—"How shall I prevent my celluloid plates from cracking?"

Before placing the cast in the flask, be sure that it is shallow enough to allow a little room underneath it. When ready, put in enough plaster, mixed quite stiff, to half fill the flask; dip the cast into water, then settle it into the plaster, being sure that it is not displaced from under the cast.

Do not have the plaster too thin; a small quantity of sand mixed with the plaster will enable you to make a thicker mass, and there will be less danger of its displacement under pressure.

In drying your plaster cast, do not employ too quick or too high a heat, or you will make it friable.

When packing or moulding the celluloid, let the heat rise up to 300°, then turn the screw until the resistance is appreciable; let it rest a minute or two to give the material time to adapt itself to the cast, then continue the pressure, and so on.—S.

REPLY TO "J. T. S."—"What is the advantage claimed by Dr. Mack, in making two holes in a root for the insertion of the pins or pivots to secure an artificial crown, when there is already a *central* cavity? and is there not a positive disadvantage in making two additional holes in the root?

"In what does his patent for attaching artificial crowns consist?

"In this connection, I would also be glad to be informed in what his patent for securing dental fillings consists."

Dr. Mack's claim, in patent dated Jan. 30th, 1872, No. 123,271, is as follows:

"1. An artificial tooth-crown for pivot teeth, with an elongated mortise extending toward the labial and back toward the lingual surfaces sufficiently far to receive two pins or screws located in the anterior and posterior portions of the fangs, said mortise or under-cut being dovetailed or otherwise shaped to retain firmly its fill of fusible alloy, substantially as set forth.

"2. An artificial crown, provided with an under-cut or dovetailed mortise, in combination with two continuous screw-pins, said pins being firmly secured in the solid dentine of the natural fang or root, and the two parts held together by means of a fusible alloy in said under-cut substantially as herein described."

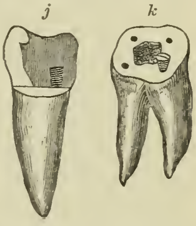
The advantages stated by him are that the two pins will more securely fasten the crown to the fang than a single central screw would be capable of doing. It is difficult, however, to appreciate wherein his plan can be superior to a single strong wire well screwed into the central cavity of the root, and having a head suitably shaped to securely hold to the crown, unless the two pins were made so large as to seriously weaken the strength of the root. The method claimed may reasonably be questioned as inferior to the central pin.

The ordinary pivot teeth of our best manufacturers are provided with an under-cut or dovetailed hole, for the retention of the pivot. The patentee would appear to claim, also, the use of fusible metal as a means of connection; in this appearing to have diverted for his own advantage a method long since used for this purpose, which is, however, inferior to other plans in common use. Dr. Mack, we believe, is now recommending os artificiel, instead of fusible metal; but this is not in his patent.

In reply to the second question: Dr. Mack's claim, in patent dated May 2d, 1871, No. 114,454, is as follows:

"I claim, as the connection between a tooth and its filling, a metallic pin inserted firmly in the body of the tooth, the arrangement being substantially as described."

Now, his arrangement, as substantially described, is almost literally the method first proposed by Dr. Dwinelle as long ago as 1855, and published in the *American Journal of Dental Science* (*vide* Vol. V., new series, p. 274), as follows: "Fig. *j* represents a sectional view of a bicuspid tooth, with only its outer cusp remaining. The gold is secured to the roots by a screw, together with the hold that is gained by the insertion and consolidation of the material into the pulp cavity.'' And further, on same page, Fig. *k* shows the manner in which a tooth that has lost its entire crown is prepared for the reception or engraftment of a ''*crown of gold.*'' ''The pulp cavity has been enlarged at its base, so as to give it the broadest diameter at that point as described above. For the purpose of giving it further security and ability to resist the lateral forces of mastication, we have drilled four holes, corresponding to the four angles of the tooth, about equidistant from the pulp cavity and the outline of the tooth; with a *tap* a screw is cut within each of these for the reception of a golden screw, which is so constructed that when inserted, and established in its place, its head, in the form of an inverted cone, shall prominently project above its surface, as represented in the figure. The four screws are fixed to their places, all parts are thoroughly dry, and we proceed.''



The practice of this method since then has not been uncommon, so that his claim of invention is a pretension, since it presents no essential difference from Dr. Dwinelle's published plan.

Dr. Mack's claim, in patent dated Aug. 8th, 1871, No. 117,904, is as follows: ''I claim as a dental instrument the combined socket and wrench with the opening or recess at the end of the shank to receive and hold a pin or screw, as described.''

This *simple* invention appears to be original, but is the only instrument of the set novel or patentable.

After we recover from our surprise that two patents so devoid of originality should be pressed upon our specialty, a most remarkable feature of the case presents itself, viz., the disregard of the clause in professional ethics, ''Freely ye have received, freely give,'' which is manifested in the patenting of that which, if properly and entirely the inventor's own, is no more than most others would scorn to secure for their individual benefit.—J.

REPLY TO ''D. C.''—''What is the best treatment for gums which bleed at the slightest touch?''

From the first edition of your journal containing the new and original feature of a ''Hint and Query'' department, I have remained so impressed with it as a medium of professional good, as a *multum in parvo*, that, unwilling longer to remain a mere gleaner from other men's fields, I beg the privilege of assisting in so commendable a work by offering of the good which has grown from my own reading and observation.

A hemorrhagic tendency in the gums exists from various causes: these are classifiable under the twofold aspect of constitutional and local. In the first of these directions are to be noted—1st, the mercurial impression; 2d, scorbutus; 3d, purpura; 4th, syphilis; and, as treatment is concerned, these may all be viewed as expressions of the typhoid conditions. Constitutional causes have associated histories.

''Mercury first yields evidences of its action by producing in the mouth a metallic taste, complained of as coppery; a little time, and this taste is accompanied with some increase in the quantity of saliva; still later, the festoons of the gums will be found congesting, commencing generally about the necks of the lower teeth. Succeeding this congestion we have the dull whiteness indicating the change in the epithelial tissue,—a form of aphthæ. There now follow the elongation of the teeth, increased salivary flow, stiffness of the gums, enlargement of the tongue, foul breath, etc.

''The effects which mercury shall produce on the mouth, or system at large, depend on the quantity administered and the susceptibility of the individual I have myself exhibited the medicine in quantities of from fifteen to twenty grains in the course of three days without being able to perceive the local action; while, on the contrary, I have known five grains so to swell the tongue that it required much effort to prevent the patient being smothered. Children from five to ten years of age have seemed to me markedly susceptible. I removed, a short time back, the whole of the left half of the body of the lower jaw, dead from but some three grains of calomel, as averred by the practitioner who administered the medicine. The patient was seven years of age. Mercurial ulitis, when confined alone to these parts, signifies but slight effect on the part of the action of the agent; and the immediate cessation in its employment will generally result in the disappearance of these effects. If this should not, however, prove the case, I think nothing better can be done than to scarify, and paint the gums with tincture of iodine, graduated to each particular case, say, as a rule, half and half of the officinal tincture and water. Chlorate of potash as a wash, and used internally, may also be employed. To an adult, ten grains of the salt, dissolved in a tablespoonful of water, may be given four or five times a day. As a local application, one drachm to the ounce of water is a very good strength. The bowels are to be kept in a lax condition by the administration of Seidlitz powders or other saline cathartics. Where mercurial ulitis passes to that stage which results in the breaking down of the tissue (and this is sometimes the case where even adjacent parts are not markedly affected), the treatment required is much more imperative, and pertains, as a rule, quite as much to the constitution at large as to the mouth itself. Locally, the fetor will urgently demand attention; and one of the best means to correct this will be found in the use of a solution of the permanganate of potash, such solution varying in strength from two to ten grains to the ounce of water. Constitutionally, vigorous tonic medicaments are required,—not the least important of which are the iron and bark preparations. If hemorrhage intervenes, it may be necessary to employ opium and lead internally, or tincture of Erigeron Canadense, in doses of one or two drops, repeated occasionally until such bleeding is controlled Locally, cobweb saturated in alum-water may be used. Laid carefully upon the bleeding part, and retained in position, it will seldom be found to fail. Monsel's solutions should not be used. The tendency in extreme cases toward sloughing is a matter constantly to be borne in mind. When the tumefaction is very great and indolent-looking, the parts are still to be incised and the iodine applied; but both remedies are to be used with judgment and caution. I have known gums in the condition alluded to, and which might perhaps have been recovered, sloughed in mass by applications of strong tincture of iodine. Always let the incisions at first be few, and the tincture at least two-thirds diluted. The dilute aromatic sulphuric acid is also a happy local remedy in these conditions. It may be mixed with water until the acid taste is comfortably bearable,—about ʒj to ℥viij of water. A combination for local use, which I also occasionally employ with much benefit, is composed as follows:

℞.—Potassæ chloratis, ℥ss;
Sodæ biboratis,
Aluminis pulveris, āā ʒij;
Potassæ permanganatis, gr. xxv;
Aquæ Coloniæ, ℥j;
Tincturæ cinchonæ, ℥ij;
Tincturæ myrrhæ, ℥j;
Tincturæ capsici, ʒj;
Tincturæ krameriæ, ℥j;
Aquæ, ℥viij. M.

"If, in defiance of all that is done, the parts should slough, one of three things occurs: the disease will seem to have exhausted itself, and the parts, after a little rest, give evidence of recovery; or the bone follows the ulcerative action, and sloughs likewise; or the patient dies from irritation and exhaustion.

"*Scurvy.*—Scurvy proper, such as decimated the legions of Louis IX., and in even later days was so frequently the scourge of protracted sea-voyages, is a condition which modern science and judgment have so combated that it may be trusted that few of us will ever have occasion to meet with or treat it. Modified forms of the disease are still, however, prevalent enough, and exist, with great variety of features, from simple indolent ulitis to general purpura.

"Puffiness of the gums, scorbutic in nature, is fairly judged, I think, from its dull, purple aspect, independent of its varying constitutional conditions. This venous congestion compares pathologically with the effusions of purpura proper. It would not, however, be at all truthful, or in accordance with the facts, to describe any particular train of constitutional conditions as constantly associated with the scorbutic sore mouth, as met with in ordinary practice, and for the reason that nothing else of the disease may appear but the local manifestation. That it is a constitutional affection, and not a local disease, is proven by the fact of absence of any source of local irritation, and by the further fact of its constant presence in the mouth, let the disease possess whatever other manifestations it may.

"Dr. Foltz, U.S.N., in a report made by him on the scurvy which appeared in the blockading fleet of the Gulf of Mexico, states that 'lassitude and indisposition to muscular energy, noted so frequently by authors as prodroma, were not among the symptoms which ushered in the disease, and that there was great activity, and not unfrequently cheerfulness, good appetite, and sound sleep at night, after the teeth were loosened, the gums ulcerated, the limbs œdematous and discolored; and when at last the patient gave way, it was not an indisposition to corporeal exertion, but an actual disability.'

"Authors, however they may disagree in their descriptions of such various cases as have come under their observation, are all agreed that scurvy results from the absence of fresh fruits and vegetables, or their juices, necessary to furnish some principle required in the blood, and which is not, in such absence, otherwise obtained. In the treatise published by Dr. Hamilton on Military Surgery, the author says, 'In regard to the pathology of scurvy, the belief prevails that it is due essentially to the absence of certain staminal principles from the blood, and especially potash. It appears to be a pretty well ascertained fact that all, or nearly all, of those remedies which have been employed successfully in the prevention or cure of scurvy, contain potash. Potatoes, cabbage, celery, lettuce, lime-, lemon-, and orange-juice, contain it in large quantity, unless their salts have been expressed by the application of heat, as in boiling, or other modes of cooking Lime-, lemon-, and orange-juice contain nearly one grain of potash to every ounce of the juice.

"'One ounce of potatoes yields one grain and a half, while one ounce of rice yields only .005 of a grain. The substitution of rice in an English workhouse for an equal amount by weight of potatoes was followed in a short time by scurvy.'

"In the ordinary scurvy of the gums, which every practitioner is aware presents itself more frequently in the very early spring, when the old vegetables have been pretty well exhausted and the fresh ones have not begun to grow, it is the common experience to discover that the patients have existed almost exclusively on salt meats; hence it is much the most frequently met with in the poorer class of farm laborers. The gums in these cases, are of a purple color, turgid, with the dental pits discharging pus, the teeth loosened, the breath offensive, but the face not by any means pale, nor the habits languid: indeed, there is little or nothing to signify that the local manifestation is a systemic offspring. When the condition is extreme, it is not uncommon to have fungoid growths springing from the edges and depths of the dental pits.

"*Treatment.*—It will be found good practice to treat these conditions locally, as directed in mercurial ulitis. Constitutionally, however, different indications are to be met; a something possessed by a vegetable and acid diet is required by the blood. Without stopping to discuss the question whether this may or may not be potash, we act on the empirical conviction, and at once direct such diet. Then the depressed or perverted life-force is to be elevated or relieved, and to this end nothing can equal the sheet-bath, taken with water moderately warm and moderately salt. Saturating the sheet, it is quickly thrown around the body, and the patient or an assistant rubs the sheet over the flesh until the whole person is in a ruddy glow. This is repeated each morning immediately on rising.

"As medicine, the vegetable acids may be freely used. Lemonade is perhaps quite as good as anything that can be given. A combination which has some celebrity is known as Turner's antidote; it consists of ʒij of nitrate of potassa, mixed in ℥viij of acetic acid, administered in tablespoonful doses three times a day. Conjoined with general medication, attention is required by the teeth and gums.

"*Syphilis.*—Syphilitic ulitis I judge, from my own experience and observation, to be an inflammation not of the gum tissue proper, but simply of its mucous envelope; or, on the other hand, it is an inflammation commencing in the periosteum, and secondarily affecting the gum tissue. I do not think I have ever seen a case of pure uncomplicated syphilitic ulitis; while few conditions are more common than mercurio-syphilitic ulitis and osteo-ulitis of syphilitic origin. The appreciation of such conditions is, of course, not at all difficult: the history of the case alone is sufficient to give the diagnosis, while to the experienced eye a moment's glance is enough to reveal such history. If the inflammation is confined to the mucous membrane, the full extent of its surface will be more or less affected, its color will be a dull red, it will be more or less tender to the touch, and most likely ulcerated. If, on the contrary, the bone or its periosteum is the primary seat of trouble, the gum may simply be thrown up by the effusion beneath it; or if it happens that the gum itself has become inflamed, the action seems inclining to localize itself as much as possible. This, however, depends on the state of the parts beneath, and on the treatment that is being pursued. If the condition is one of pure uncomplicated venereal ostitis, the excitement in the gum will be found localized to the immediately overlying parts; but if there has been a mercurial treatment, we may have any extent of complication. The treatment in these cases is to be founded on existing conditions."*

1st. Local Causes. Of the local causes, mention may be made of loose teeth, which, in the constant movement to which they are subjected, keep the surrounding parts in a condition of continuous congestion. Treatment of such a case would lie in giving attention to the state of the teeth.

2d. The employment of improper dentifrices. Non-soluble articles used in dentifrices, while at times an absolute necessity, may, in an injudicious employment, become the provocation of a hemorrhagic tendency, such a result ensuing from the presence of such débris in and about the muco-dental crypts. Treatment of these cases consists in getting clear of the offending agents. This is to be effected through the free use of the syringe; stimulant washes are indicated.

3d. The use of vulcanite as a base for artificial teeth. To many mouths this material is found to be such a source of irritation that the mucous membrane is seen to be not only in a state of profound congestion, but as well is the tone of the tissue found so lowered that the common act of brushing induces breaks in the vascular continuity, while particles, finding their way between the plate and related soft parts, become agents of increased irritation to tissue made too feeble to resist. Treatment.—Replace the plate with a better material, and prescribe acid, stimulating, and astringent washes.

4th. Local hyperæmia. Undoubtedly cases are met with where, because of great deficiency in the epithelium covering, the basement mucous tissue, with its vascular associations, lies superficial and exposed. Treatment.—Undeniably difficult to remedy; the principle of the cure is, however, found in the opposite treatments of stimulation and depletion: the first of these means being employed as a provocation of epithelial generation; the second, which consists in the frequent and free lancing of the gums, as directed in mercurial ulitis, being with the object of diminishing vascularity through lymph effusions induced. In cases where, conjoined with the local fullness, the temperament is markedly sanguine, attention is demanded most importantly to the diet of the patient; this is to be plain and simple, rich and stimulating food being contraindicated. As a reverse to such conditions anæmia is found the frequent source of ulitic hemorrhage, the blood being of such watery and impoverished condition that the bleeding seems to find explanation in a mechanical percolation through tissue simply incapable of restraining it. Treatment here finds its indication in the bloodless lips and languid habit. As a medicine, nothing better is to be employed than the muriated tincture of iron freely administered internally. Conjoined with this, invigorating out-door exercise, the salt-bath, and similar hygienic adjuncts, are to be advised.—X. Y. Z.

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*Garretson's System of Oral Surgery.

# THE GARDNER SUIT.

THAT the dental profession may not be uninformed or misinformed as to the progress of events, we publish below a motion submitted and filed in the Supreme Court of the United States last Tuesday (October 29th). This motion will be argued in due course, and we will publish the proceedings and the result at large. For the present we are not disposed to say more than this, and only to say this much as showing that something of good faith is still required even in legal proceedings. The progress of this litigation will be given in the next number.

S. S. W.

## SUPREME COURT OF THE UNITED STATES.

**No. 133. December Term, 1871.**

BENONI E. GARDNER, *Appellant,*
*vs.*
THE GOODYEAR DENTAL VULCANITE COMPANY AND JOSIAH BACON.
*Motion to dismiss appeal.*

And now this twenty-ninth day of October, A.D. 1872, come before the court Jeremiah S. Black and Henry Baldwin, Jr., on behalf of Samuel S. White, of Philadelphia, Pennsylvania, and of many others, dentists, all citizens of the United States, and move the court to dismiss this appeal.

And in support of this motion they produce in court the affidavits of Benoni E. Gardner, this appellant, John B. Newbrough, Henry E. Fickett, Henry Coy, and Samuel S. White; and thereupon show the following facts:

1st. That there was no dispute between the plaintiffs and the defendant in the court below at the time the final decree was there made.

2d. That there was no dispute between the appellant and the appellees in this court at the time this appeal was taken, nor when it was argued.

3d. That the decree for damages and costs against the defendant in the court below was not and is not intended to be enforced, but that this appellant was and is protected against the same by agreements made in that behalf by the appellees before said decree was taken.

4th. That the injunction granted by the court below in its final decree was not and is not intended to be enforced, but that the appellant was protected against the same by a license granted in that behalf by the appellees before said decree was taken.

5th. That the appellant is not even liable for costs in this court, but that the same have been or are to be paid by the appellees.

6th. That the appellant here has no interest whatever in the questions involved in this appeal, nor in their determination; but that the appellees herein are attempting to procure the opinion of this court upon questions of law, in the decision of which their interest is opposed to that of other persons who are not parties to this suit, who had no knowledge of it while it was pending in the Circuit Court, and no opportunity of being heard in defense of their rights.

7th. That this cause was argued in the court below, and in this court, without there being any interest adverse to that of the appellees represented therein, and without there being even a colorable dispute, to obtain an opinion of this court, which the appellees desire to have in their own interest and for their own purposes, when there is no real and substantial controversy between them and the appellant, and no conflict between their interests; all the interest involved herein pertaining to the appellees, and that interest adverse to and in conflict with the interests of third parties, whose rights would be seriously impaired if the questions of law herein are decided in the manner in which these appellees have sought and are seeking to have them adjudicated upon this appeal.

8th. That the Goodyear Dental Vulcanite Company became and was in the court below, and has been and is in this court, the sole party in interest in this cause, and as such *dominus litus* on both sides thereof.

9th. That while this cause was pending in the court below the appellees became the legal and equitable owners of all and any opposing interest at any time involved therein; employed and paid counsel on both sides, and made up a record therein to suit themselves; in order to obtain an opinion of this court that should conclude the rights and interests of persons not parties to the pretended controversy.

Upon the facts above stated, the counsel named, on behalf of their clients aforesaid, move the court to strike out the judgment or decree heretofore made in the said cause, and to quash the appeal taken therein, direct the Circuit Court to dismiss the plaintiff's bill, and take such measures in the premises as justice and right may seem to require.

J. S. BLACK,
HENRY BALDWIN, Jr.

*Indorsed:* Supreme Court U. S., 1871, Dec. Term, No. 133. Gardner, app't *vs.* Dental Vulcanite Company. Motion to set aside decree and dismiss appeal. Filed 29th October, 1872.

True copy.
[SEAL.] Test: D. W. Middleton,
*Clerk Supreme Court U. S.*